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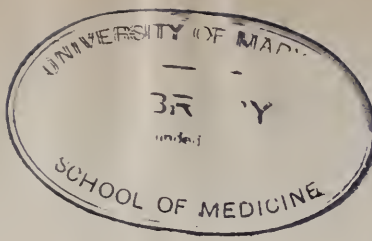
JANUARY 1956

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C.M.A. Annual Meeting, Los Angeles, April 29–May 2, 1956

OFFICIAL JOURNAL
OF THE CALIFORNIA MEDICAL ASSOCIATION



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Reference: 1. Poth, E. J., J.A.M.A. 153:1516 (Dec. 26) 1953.

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HYPERTENSION**

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- Hence, reserpine is not the total active antihypertensive principle of the rauwolfia plant.
- Rauwiloid, the alseroxylon fraction of Rauwolfia serpentina, Benth., is freed of the undesirable alkaloids of the whole root. Recent investigations confirm the desirability of Rauwiloid (because of the balanced action of its contained alkaloids) over single alkaloidal preparations; "...mental depression...was...less frequent with alseroxylon..."²

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1. Cronheim, G., and Toekes, I.M.: Comparison of Sedative Properties of Single Alkaloids of Rauwolfia and Their Mixtures, Meeting of the American Society for Pharmacology and Experimental Therapeutics, Iowa City, Iowa, Sept. 5, 1955.

2. Moyer, J.H.; Dennis, E., and Ford, R.: Drug Therapy (Rauwolfia) of Hypertension. II. A Comparative Study of Different Extracts of Rauwolfia When Each Is Used Alone (Orally) for Therapy of Ambulatory Patients with Hypertension, A.M.A. Arch. Int. Med. 96:530 (Oct.) 1955.

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FEDERAL MEDICAL SPENDING FOR FISCAL YEAR 1956

(JULY 1, 1955, TO JUNE 30, 1956)

This is the third annual report on federal health spending prepared by the Washington Office of American Medical Association. It is a factual study based on budgets, appropriation bills, and information obtained directly from government agencies and departments.

The report shows that this year the Department of Health, Education, and Welfare with almost a one-third increase reaches a new high mark in spending for health and medical programs—more than half a billion dollars. Only two other agencies' medical spending is over the half billion figure, Defense Department and Veterans Administration.

Compared with last year, HEW is spending 32 per cent more in the health fields. The increase—\$127,754,900—is explained largely by sharp boosts in funds for Hill-Burton hospital construction, for vocational rehabilitation, for medical research and for the medical care of the indigent, and by a \$30 million appropriation to purchase Salk vaccine and finance inoculation campaigns.

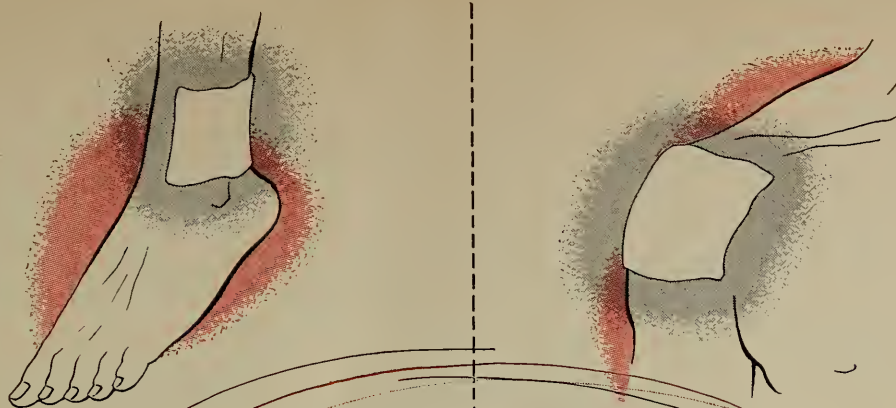
Total federal health spending also will reach a new high of over two and one quarter billion dollars during the current fiscal year, about \$2,268,800,000 a 6.4 per cent increase over last year. Even in a national budget well up in the billions, this figure for federal medical-health spending is not inconsequential. It is about 15 times the amount needed to maintain Congress and the federal courts, 14 times the total budget of the State Department, and four times more than is spent by either the Labor Department or the Post Office Department. Expressed another way, Uncle Sam puts up \$15 of every \$100 spent by the American people (publicly or privately) for health and medical purposes, from purchase of toothpaste to financing cancer research.

In this *special report* we list first the actual appropriations for this year and last year, plus funds carried over, then give a breakdown based on estimates furnished us by the various departments.

MEDICAL-HEALTH BUDGETS OF FEDERAL DEPARTMENTS, AGENCIES AND COMMISSIONS FOR THIS FISCAL YEAR

Agency	Fiscal 1956	Fiscal 1955
Department of Defense	\$818,104,500	\$844,087,500
Veterans Administration	790,185,800	754,819,344
Department of Health, Education and Welfare	526,935,400	399,180,500
Federal Civil Defense Admin.....	30,450,000	28,755,000
Atomic Energy Commission	27,700,000	26,800,000
International Cooperation Admin.	25,441,000	31,137,900
Department of State.....	13,669,790	12,607,667
Department of Labor.....	7,336,000	7,171,857
Federal Employees Health Program	6,000,000	6,000,000
Department of Interior.....	5,770,000	5,837,909
Panama Canal Zone.....	5,702,900	5,800,503
National Science Foundation.....	5,000,000	3,600,000
Department of Treasury.....	2,990,000	2,770,000

(Continued on Page 14)



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IN LOCALIZED
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Federal Medical Spending for Fiscal Year 1956

(Continued from Page 10)

Department of Justice.....	1,470,000	1,277,362
Federal Trade Commission.....	1,000,000	1,000,000
Civil Service Commission.....	382,600	350,000
Department of Commerce.....	277,586	299,733
National Advisory Committee to Selective Service.....	180,000	147,444
President's Committee for Handicapped	130,000	87,653
Health Resources Advisory Committee	101,000	90,000
TOTALS	\$2,268,826,576	\$2,131,820,372

DEPARTMENT OF DEFENSE

(This Year: \$818,104,500—Last Year: \$844,087,500)

*Army Medical Services \$300,000,000
Last Year: \$325,000,000

The decrease of \$25,000,000 (approximately 8 per cent) in Army medical spending for the current fiscal year is attributed to a projected cut of 4,500 medical personnel, both civilian and military. The totals include estimated operating and construction costs for all three services.

*Air Force Medical Services \$286,000,000
Last Year: \$280,000,000

Air Force expects to spend about \$6,000,000 (approximately 2 per cent) more this year, mostly to support a planned increase of 929 civilian and military medical personnel.

*Naval Medical Services \$232,000,000
Last Year: \$239,000,000

Navy expects to spend about \$7,000,000 (or 3 per cent) less than last year, because of a 1,200 reduction in medical personnel.

Office, Assistant Secretary of Defense

(Health & Medical) \$104,500
Last Year: \$ 87,500

For salaries, travel and administration of this office, and for travel expenses and consultant fees for the Defense Department Civilian Health and Medical Advisory Council.

VETERANS ADMINISTRATION

(This Year: \$790,185,800—Last Year: \$754,819,344)

In-Patient Care in VA Hospitals \$615,869,000
Last Year: \$567,974,991

VA's largest single medical appropriation covers in-patient care in 173 VA hospitals and provides for an average of 120,873 beds a day. At present VA reports daily patient load at 106,682, which is just under 90 per cent of capacity. The appropriation includes salaries of physicians and other personnel,

*Because Defense Department's accounting system does not isolate medical from other spending, this total is a combination of: (a) actual planned spending in a few identifiable categories, like civilian salaries, supplies and equipment, and (b) Department's estimate of the remaining costs. Missing from this estimate is a breakdown showing spending for such services as preventive medicine, education and training, etc. This breakdown was available to us last year only because the Department, at the request of the Hoover Commission, made a special study of its budget, out of which came the separate totals.

(Continued on Page 22)

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in those intranasal disorders

where thick mucopurulent discharge indicates
there is secondary bacterial infection, prescribe



'Trisocort' Spraypak* is the intranasal
preparation which provides:

- (a) *Hydrocortisone*— the most effective intranasal anti-inflammatory agent: to reduce inflammation, edema, and engorgement.
- (b) *3 antibiotics*— gramicidin, polymyxin and neomycin: to neutralize both gram-positive and gram-negative bacteria.
- (c) *2 decongestants*— phenylephrine hydrochloride and Paredrine† Hydrobromide: to assure both rapid and prolonged decongestion.

Formula: Hydrocortisone alcohol, 0.02%; gramicidin, 0.005%; neomycin sulfate (equivalent to neomycin base, 0.60 mg./cc.); polymyxin, 2000 U/cc.; phenylephrine hydrochloride, 0.125%; 'Paredrine' Hydrobromide, 0.5%; preserved with thimerosal, 1:100,000. Available in ½ fl. oz. squeeze bottles.

Smith, Kline & French Laboratories, Philadelphia 1

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†T.M. Reg. U.S. Pat. Off. for hydroxyamphetamine hydrobromide, S.K.F.

Federal Medical Spending for Fiscal Year 1956

(Continued from Page 14)

medical rehabilitation of veterans, dietetic and nursing services, social services and special services, such as recreation and transportation of veterans.

Out-Patient Care \$85,471,200
Last Year: \$83,130,222

The bulk of this appropriation (about \$66,509,000) is for out-patient care in 99 VA clinics. Of the remainder, \$7,861,000 is earmarked for fees to physicians and \$11,100,000 for dentists under the home-town care program.

Modernization and Replacement
Construction \$30,000,000
Last Year: \$47,000,000

This amount is for work on existing units costing over \$250,000 a project, and equipment for new units. The money is available until expended. It includes \$2,900,000 for technical services in rehabilitating the Downey (Ill.) Hospital.

Domiciliary Care \$23,062,500
Last Year: \$22,279,217

Domiciliary care is being provided in 17 VA facilities for about 17,000 veterans who, while incapacitated for employment, are not in need of full hospital care. VA also makes payments to 32 state homes in 28 states with a daily patient load of around 8,700. Payments this fiscal year are estimated at \$5,569,000 (under Public Law 613, 83rd Congress, federal contributions to these homes were raised from a maximum of \$500 to \$700 a year per patient).

Contract Hospitalization \$15,237,300
Last Year: \$15,239,143

This appropriation finances an average daily patient load of 3,900 veterans in federal hospitals other than VA and in state and municipal hospitals. Patients in federal non-VA hospitals are estimated at 1,445 and in nonfederal hospitals, 2,455. Psychotic cases make up the largest single category of contract cases.

Medical Administration and Miscellaneous
Operating Expenses \$7,422,000
Last Year: \$7,191,771

To operate the VA Department of Medicine and Surgery in the Washington central office and the seven area medical offices; included are salaries, travel and like expenses.

Medical Research \$6,381,600
Last Year: \$5,560,000

For research, mostly in VA hospitals. The breakdown: general medical and surgical, \$2,809,700; atomic medical research, \$1,741,000; prosthetics testing, \$989,600; neuropsychiatric, \$503,000; tuberculosis, \$262,200; other, \$76,100.

Major Alterations, Improvements
and Repairs \$3,900,000
Last Year: \$3,480,000

For alterations, improvements and repairs to VA clinics and domiciliaries (costing less than \$250,000 per project).

Supply Depot Operations \$1,642,200
Last Year: \$1,654,000

For maintaining and operating supply depots handling the purchase, shipping and storage of supplies and equipment used by the Department of Medicine and Surgery.

Medical Education and Training \$1,200,000
Last Year: \$1,310,000

For VA training programs for physicians and other VA personnel, in medical specialties and auxiliary services.

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE (This Year: \$526,935,400—Last Year: \$399,180,500)

Division of Hospital Facilities \$112,250,000
Last Year: \$ 97,445,000

This division supervises both the regular and expanded Hill-Burton hospital clinic programs. The total appropriation is divided into the following four categories:

Hill-Burton Hospitals
(Regular Program) \$88,800,000
Last Year: \$75,000,000

This appropriation, allotted to the states on the basis of population and per capita income, assists in the financing of new hospitals and related health facilities constructed under the regular Hill-Burton program. Since its initiation in 1946, federal funds have partially financed approximately 2,515 projects totaling nearly 119,000 hospital beds, and almost 550 public health centers. The federal share ranges from one-third to two-thirds of the total cost of the project, determined by the state and indirectly by the per capita wealth of each state.

Research (Regular Program) \$1,200,000
(New category)

Authorized in 1949 but not appropriated until this year was this item for research, experiments and demonstrations on utilization of hospital services, facilities and resources. The bulk of the money is earmarked as grants to states, universities and hospitals, and a smaller amount for direct research by Public Health Service.

Medical Facilities (New Program) \$21,000,000
Last Year: \$21,000,000

The total allotted to the states on the population-per capita income formula will assist in the financing of new construction under the 1954 amendments in four categories as follows: \$6,500,000 for hospitals for the chronically ill and impaired; \$6,500,000 for

(Continued on Page 36)



MERATRAN Profile

OVERWORKED, DEPRESSED*

Sex: *Male* Age: *38* Occupation: *Railroad engineer*

Chief Complaint: *fatigue, anorexia, sleeplessness.*

Symptoms: *fast pulse, restless movements, nervous speech habits.*

Observations: *Onset of depressive and discouragement seemed to date from time of release from military service, recurring when work became heavy.*

Treatment: *Meratran 6 mg. daily, gradually reduced over 60-day period. (Previous sedation and anti-symptomatic therapy only partially successful.)*

Response: *felt fine, good spirits, appetite excellent, pulse down from 112 to 84.*

Results: *Improved - no signs or symptoms of original complaint.*



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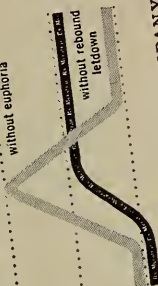
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Dose: 6 mg. daily, adjusted downward to patient need.

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U.S. PATENT

* Case history from the actual files of an eminent physician; photo professionally posed

Three-Injection Method to Be Continued for Salk Vaccine

A technical committee on the Salk poliomyelitis vaccine has agreed unanimously, and Department of HEW officials have concurred, that the present system of three injections should be continued. The group rejected a proposal for a single injection to get the limited supply to more children. PHS Surgeon General Scheele summed up for the committee in these words: "Although it is evident that the injection of 1 cc. produces a marked degree of immunity, it was found that there is not enough scientific evidence on the duration of immunity after a single dose to lead to any recommendation for a change in the present dosage."

Accordingly, this remains the procedure: Two injections, with the second following four to six weeks after the initial dose or as soon thereafter as possible; then a booster shot seven months or later after the second injection. Each shot 1 cc.

PHS's Poliomyelitis Surveillance Unit presented figures to the conferees on single injections which purported to show 69% effectiveness in seven reporting states (of 1,490,459 children vaccinated in these states, only 58 had paralytic polio, while of 1,789,651 unvaccinated children, 325 had paralytic polio). The states under study were New York, California, Colorado, Illinois, Maryland, Minnesota and Missouri. Dr. Jonas Salk, developer of the vaccine, demonstrated on the other hand that a second injection followed by the booster markedly increases the degree of immunity. In conclusion the group of experts agreed to stand by the present system because, among other reasons, (1) a higher incidence of polio occurs in lower age groups and efforts should be concentrated there, and (2) difficulties possibly would arise in reeducating physicians and parents on any change.

—A.M.A. Washington Letter

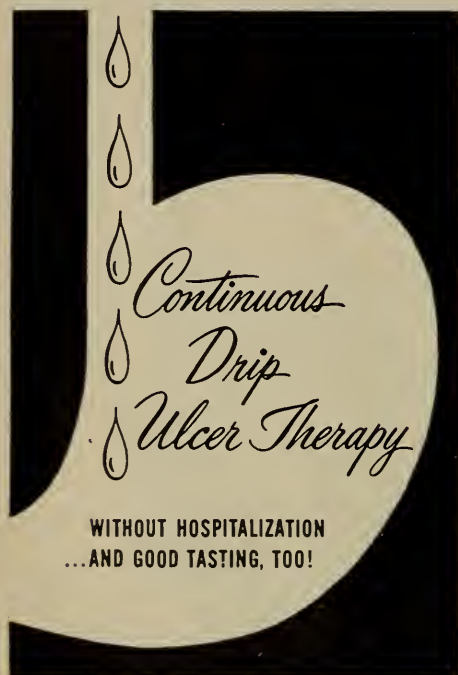
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Originators of CLINIC DROPPER

A large, stylized letter 'U' is the central graphic. Inside the 'U', the words 'Continuous Drip Ulcer Therapy' are written in a cursive script. To the left of the 'U', five teardrop shapes are arranged vertically. Below the 'U', the text 'WITHOUT HOSPITALIZATION ...AND GOOD TASTING, TOO!' is written in a sans-serif font.

Nulacin

A recent clinical study* of 46 ambulatory nonhospital patients treated with Nulacin† and followed up to 15 months describes the value of ambulatory continuous drip therapy by this method. Total relief of symptoms was afforded to 44 of 46 patients with duodenal ulcer, gastric ulcer and hypertrophic gastritis.

The delicately flavored tablets dissolve slowly in the mouth (not to be chewed or swallowed). They are not noticeable and do not interfere with speech.

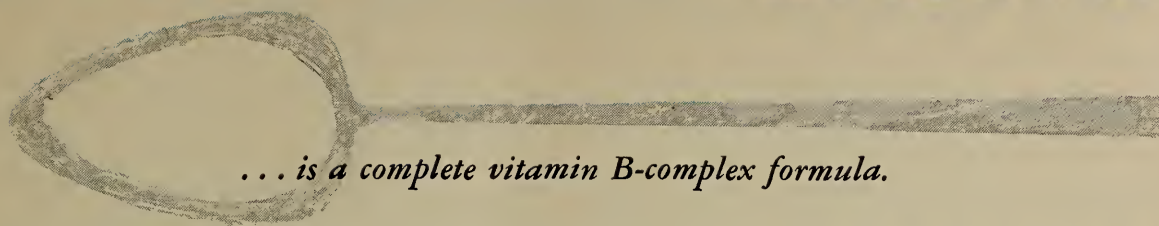
Nulacin tablets are supplied in tubes of 25 at all pharmacies. Physicians are invited to send for reprints and clinical sample.

**HORLICKS
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RACINE, WISCONSIN

*Steigmann, F., and Goldberg, E.: Ambulatory Continuous Drip Method in the Treatment of Peptic Ulcer, *Am. J. Digest. Dis.* 22:67 (Mar.) 1955.

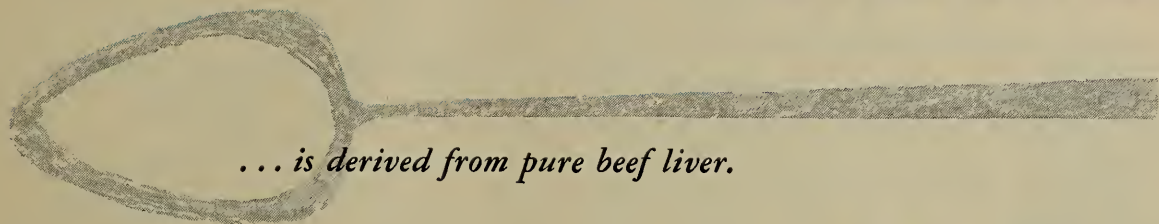
†Mg trisilicate 3.5 gr.; Ca carbonate 2.0 gr.; Mg oxide 2.0 gr.; Mg carbonate 0.5 gr.

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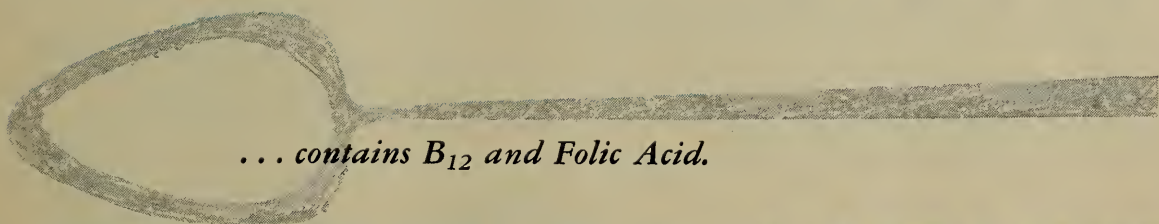
... is a complete vitamin B-complex formula.

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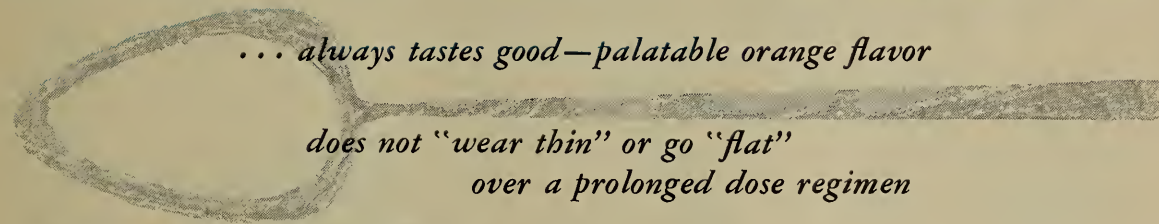
... is derived from pure beef liver.

LEDERPLEX LIQUID



... contains B₁₂ and Folic Acid.

LEDERPLEX LIQUID



... always tastes good—palatable orange flavor

*does not "wear thin" or go "flat"
over a prolonged dose regimen*

LEDERPLEX* *Liquid* LEDERLE

Vitamin B-Complex

Each teaspoonful (4 cc.) contains:

Thiamine HCl (B ₁)	2 mg.	Pantothenic Acid	2 mg.
Riboflavin (B ₂)	2 mg.	Choline	20 mg.
Niacinamide	10 mg.	Inositol	10 mg.
Folic Acid	0.2 mg.	Soluble Liver Fraction	470 mg.
Pyridoxine HCl (B ₆)	0.2 mg.	Vitamin B ₁₂	5 mcgm.

Also offered in Tablet, Capsule and Parenteral forms.

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*REG. U.S. PAT. OFF.



One-Man Hospital Gets Commission Accreditation

Every year the Joint Commission on Accreditation of Hospitals surveys 1,500 hospitals, and over a three-year period it surveys 4,000 institutions. Not until recently has it ever approved a hospital directed and operated by only one physician.

The Maynard MacDougall Memorial Hospital in Nome, Alaska, a 25-bed institution, was given full accreditation by the Joint Commission recently. The hospital is run by the Women's Division of Christian Service of the Board of Missions of the Methodist Church and its medical director and only physician

on the staff is Dr. Fred M. Langsan, a general practitioner.

"The hospital," said Dr. Kenneth B. Babcock, commission director, "was surveyed and found to be in excellent maintenance and condition, and clean and sanitary throughout, with a cheerful, friendly atmosphere pervading the entire institution."

Dr. Langsan often holds consultations with members of a U. S. Air Force hospital which is located nearby. Staff people of the Air Force hospital have flown into Nome to be of assistance at specific times. All x-rays and pathological tissues are sent to Seattle and the reports are sent back air mail.

(Continued on Page 32)



Anti-Pyrexol

Active ingredients: Oils of spearmint, bay, wintergreen (syn.), salicylic acid, lanolin, zinc oxide, phenol (0.44%) ortho-hydroxyphenylmercuric chloride (.56%)—petrolatum, paraffin. Physicians in increasing numbers are using Anti-Pyrexol in the treatment of denuded and painful skin lesions—for burns, scalds, incised or lacerated wounds, surface irritations and local inflamed conditions of the skin and mucous membrane. An antiseptic ointment that minimizes scarring. In 2 oz. tubes, and 1, 5, 10 and 50-lb. tins at your surgical supply house or jobber. Imitated—so ask for easy spreading Anti-Pyrexol.

combats toxemia. Anti-Pyrexol reduces pain, promotes healing, and prevents infection. In 2 oz. tubes, and 1, 5, 10 and 50-lb. tins at your surgical supply house or jobber. Imitated—so ask for easy spreading Anti-Pyrexol.

ANTI-PYREXOL BLAND. Same as Anti-Pyrexol except that ortho-hydroxyphenylmercuric chloride is omitted—suggested in treatment where chances of infection are lacking. Packed as Anti-Pyrexol.

ANTI-PYREXOL BENZOCAINE. Represents Anti-Pyrexol plus Benzocaine 3%. Acutely anesthetic. Packed in 2-oz. tubes and in 1, 5 and 10-lb. tins. NOT ADVERTISED TO THE LATE

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LOS ANGELES 21

LADY LOIS DIABETIC-DIETETIC ICE CREAM

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One-Man Hospital Gets Commission Accreditation

(Continued from Page 28)

In his report, the commission's surveyor said that "the charts containing histories, physicals, and laboratory reports are excellent, and would do credit to any teaching hospital."

Commenting on the fact that this is the first one-man hospital ever accredited by the commission, Dr. Babcock said "it's a wonderful example of a fine job being done by a dedicated general practitioner."

—A.M.A. Secretary's Letter

Carbohydrate-Free Diet Called Impossible

Sugar in concentrated forms should be removed from the diet of a child with severe tooth decay, but other carbohydrates can't and shouldn't be completely removed.

A physician consultant for the *Journal of the American Medical Association* was answering a physician who had questioned the advice of some dentists that "all sweets . . . including fruits and other naturally occurring sugars," must be eliminated from the diet of caries-susceptible children.

The consultant said in a recent issue of the

(Continued on Page 42)



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Each 2 cc. dose contains:

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Riboflavin (B ₂)	10 mg.
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Pyridoxine HCl (B ₆)	5 mg.
Sodium Pantothenate	10 mg.
Ascorbic Acid (C)	300 mg.
Vitamin B ₁₂	15 mcgm.
Folic Acid	3 mg.



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AMERICAN Cyanamid COMPANY
PEARL RIVER, NEW YORK

*REG. U.S. PAT. OFF.

Federal Medical Spending for Fiscal Year 1956

(Continued from Page 22)

diagnostic centers, or diagnostic and treatment centers; \$4,000,000 for nursing homes; and \$4,000,000 for rehabilitation facilities. As under the original program, the federal share may range from one-third to two-thirds of the total project cost. To aid states in surveying their needs there still remains available about \$1,655,000 of the \$2 million voted last year. To date 35 states have received a total of \$345,000 in survey money.

Hospital Construction Administrative

Expenses\$1,250,000
Last Year: \$1,100,000

This appropriation is used for salaries and expenses for the hospital survey and construction program for Washington, D. C. and nine regional offices at the federal level.

National Institutes of Health \$97,823,000
Last Year: \$81,267,500

The total for the Institutes is apportioned as follows:

National Cancer Institute\$24,828,000
Last Year: \$21,737,000

About two-thirds of this appropriation is earmarked for grants to individual investigators and private institutions. States receive \$2,250,000 for cancer control work. The balance is used for direct operations, salaries, supplies, and for this Institute's share in the cost of operating the Bethesda (Md.) Clinical Center and related auxiliary services.

National Heart Institute \$18,778,000
Last Year: \$16,668,000

Grants to individual investigators and public and private institutions take about two-thirds of the appropriation. The sum of \$1,125,000 is allocated to states engaging in programs of heart disease control. The remainder supports direct operations, such as salaries, supplies, and support of the Clinical Center.

Mental Health Institute \$18,001,000
Last Year: \$14,147,500

Approximately 60 per cent of this appropriation is apportioned through grants to individual investigators and public and private institutions. The sum of \$3,000,000 is allocated to the states for community mental health services. The remainder will support direct operations, such as salaries, expenses and share of operating the Clinical Center and related auxiliary research services.

Institute of Arthritis &
Metabolic Diseases \$10,740,000
Last Year: \$ 8,270,000

Grants to public and private investigators total \$5,910,000. The remainder will support direct opera-

(Continued on Page 46)

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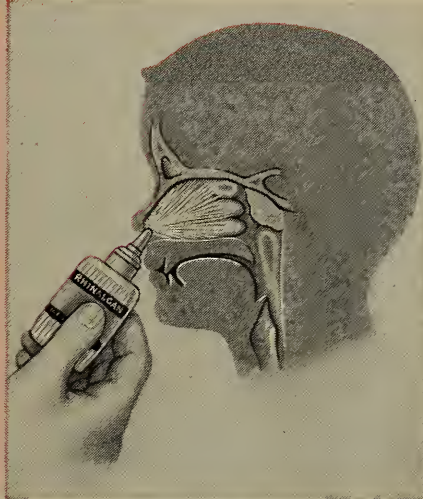
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Reference to RHINALGAN:

1. Van Alyea, O. E., and Donnelly, W. A.: E.E.N.&T. Monthly, 31, Sept. 1952.
2. Fox, S. L.: AMA Arch. Otolaryn., 53, 607-609, 1951.
3. Molomut, N., and Harber, A.: N.Y. Phys., 34, 14-18, 1950.
4. Lett, J. E., (Lt. Col. MC-USAF) Research Report, Dept. Otolaryn., USAF School Aviat. Med., 1952.
5. Hamilton, W. F., and Turnbull, F. M.: J. Amer. Pharm. Ass'n., 7, 378-382, 1950.
6. Browd, Victor L.: Rehabilitation of Hearing, 1950.
7. Kugelmass, I. Newton: Handbook of the Common Acute Infectious Diseases, 1949.

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Carbohydrate-Free Diet Called Impossible

(Continued from Page 32)

Journal that it is virtually impossible to eliminate completely all carbohydrates from the diet. He said one mother "actually was in tears" after trying to prepare such a meal.

However, he said jams, jellies, candy, heavily sugared beverages, canned (sweetened) fruits, and sweetened pastries should be avoided.

The consultant also pointed out that caries-susceptible individuals should brush their teeth or at least rinse the mouth thoroughly after each meal,

because decay occurs during and for about 15 minutes after eating.

Such caries activity is higher among persons who spend more time eating, either by slow eating or frequent between-meal snacks. Food which sticks to the teeth also causes greater activity.

Heredity plays a major role in dental caries, he said, but dietary control is still the only method of controlling the disease.

Such control has resulted in definite reduction of decay in over 80 per cent of caries-susceptible persons, he said.

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and 1.5 mg. Mesopin.** May
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(Dihydrocodeinone with Homatropine Methylbromide)

BETTER THAN CODEINE **FOR COUGH**¹

BETTER THAN CODEINE *PLUS* APC **FOR PAIN**²

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(Salts of Dihydrohydroxycodone and Homatropine, plus APC)

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Scored, yellow oral tablets. May
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1. Hyman, S., and Rosenblum, S.
H.: Illinois M. J. 104:257, 1953.
2. Piper, C. E., and Nicklas, F. W.:
Indust. Med. 23:510, 1954.

*U.S. Pat. 2,630,400
†U.S. Pat. 2,628,185

Each Percodan tablet contains: Dihydrohydroxycodone HCl, 4.5 mg.; Dihydrohydroxycodone terephthalate,

Federal Medical Spending for Fiscal Year 1956

(Continued from Page 36)

tions, such as salaries, supplies and Clinical Center support.

Institute for Neurological Diseases
& Blindness \$9,861,000
Last Year: \$7,600,000

Grants to public and private investigators and institutions total \$6,300,000 or two-thirds. The remainder supports direct operations, such as salaries, supplies and supports the Clinical Center operating costs.

Microbiological Institute \$7,580,000
Last Year: \$6,180,000

Research grants to public and private investigators amount to the same as last year: \$2,227,000. The remainder partly finances direct research and other related services of the Institute, as well as poliomyelitis and other biologics control activities of the newly created Division of Biologics Standards.

National Institutes of Health—
General Funds \$5,899,000
Last Year: \$4,675,000

These funds are administered by the Division of Research Grants of the National Institutes of Health,

with approximately 90 per cent being expended in grants. The balance goes toward supporting fellowships and administrative expenses relating to grants.

Dental Health Institute \$2,136,000
Last Year: \$1,990,000

This appropriation is divided as follows: (a) for research and fellowships, \$521,000; (b) direct research at Bethesda, \$764,000; (c) review and approval of research grants and fellowships, \$12,000; (d) administration, \$69,000; (e) technical assistance to states, \$660,000; and (f) coordination and development of dental resources, \$110,000.

Bureau of Public Assistance (Medical and Health Payments) Approx. \$90,000,000
Last Year: \$85,000,000

An estimated \$265,000,000, of federal, state and local funds is expected to be paid for medical and health needs of public assistance recipients this fiscal year. The U. S. share of this total is an estimated \$90,000,000.

Indian Health Activities \$38,840,000
(New category)

Under Public Law 568 (83rd Congress) PHS has assumed responsibility for health of American Indians and natives of Alaska which formerly was a

(Continued in Back Advertising Section, Page 58)



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mild sedation
visceral spasmolysis
mucosal analgesia

TABLETS (yellow, coated), each containing
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Preserved with myristyl-gamma-
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Supplied:

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Suburban Migration Confuses Record Keepers

The mass movement to suburbia in recent years has produced a lot of frustrating situations for a lot of people, among them the keepers of birth and death statistics.

They no longer are certain just where people live. Because the addresses of suburbanites, living outside the city limits, often carry a city postal zone number and the city name, these persons are mistaken for city residents. This sometimes makes rural and urban death and birth rates inaccurate.

Dr. Halbert L. Dunn, chief of the National Office of Vital Statistics, U. S. Public Health Service, Washington, D. C., said in a recent issue of the *Journal of the American Medical Association*, "Everyone 'knows' that birth rates are higher for rural residents than they are for city people and that death rates are higher for the cities than they are for rural areas."

But with the present suburban address situation, the rates for city dwellers appear higher and those for rural residents lower than they really are.

Therefore, the 1956 birth and death certificates are being changed, Dr. Dunn said.

The certificates will carry the following questions: Is place of birth (death) inside city limits? Is residence inside city limits? Is residence on a farm? From the answers the statisticians should be able to decide whether the family lives in the city, on the farm, or somewhere in between.

Consultants Answer Various Queries

Consultants for the *Journal of the American Medical Association* recently settled a word definition, debunked an idea about penicillin, and gave reassurance about a possible hazard of radio and TV set accidents.

(Continued in Back Advertising Section, Page 62)



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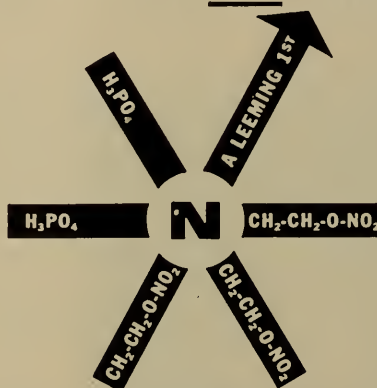
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M E D I C I N E

OFFICIAL JOURNAL OF THE CALIFORNIA MEDICAL ASSOCIATION

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Volume 84

JANUARY 1956

Number 1

Current Trends in Cancer Chemotherapy

**B. E. HALL, M.D., F. M. WILLETT, M.D., T. V. FEICHTMEIR, M.D.,
E. B. REED, M.D., and W. F. DOWLING, M.D., San Francisco**

CANCER RESEARCH has become a major enterprise, supported in large part by funds from federal and state sources and from private philanthropic organizations. A concerted effort now is being made to coordinate research programs between responsible groups actively working in this field in the hope that cancer control in man can be achieved within the foreseeable future.

Cancer restricted to a local area of the body can be cured by surgical operation or by ionizing radiation, provided dissemination of malignant cells beyond the operative site or the irradiated area has not occurred. Once dissemination has taken place, it has become common practice to attempt to inhibit neoplastic growth by palliative ionizing irradiation or by chemotherapy. It is the latter—cancer chemotherapy—with which this communication is concerned.

On theoretical grounds, the qualifications for the ideal anticancer agent are (1) a substance that can be carried by the bloodstream to malignant cells wherever they may be, and (2) a compound capable of completely destroying all malignant cells without irreversibly damaging normal cells.²² While attainment of such a goal would be highly desirable, in

• Current trends in the search for chemical compounds having an inhibitory action on the growth of malignant cells are reviewed in this article. Several agents are sufficiently promising that clinical trials with them are in progress. One of these, an aromatic nitrogen mustard (C.B. 1348), appears to be useful as an adjunctive therapeutic measure in patients with malignant lymphoma, chronic lymphocytic leukemia, and mycosis fungoides who have become refractory to other methods of treatment. The introduction of certain purine antagonists, of which 6-mercaptopurine has been given the most extensive clinical trial, has opened up a new field of experimental and clinical investigation. 6-mercaptopurine and related compounds appear to be particularly useful in the treatment of acute leukemia in adults, but they are also useful, together with the folic acid antagonists and the steroid hormones, in the management of acute leukemia in children. While at present chemotherapeutic agents currently under investigation rarely cause significant regression of inoperable primary or metastatic solid tumors, the possibility of eventual more effective control in many types of malignant disease is not as dismal as it was a decade ago.

the light of present knowledge it appears unlikely that any single agent will be found that will control all forms of cancer. It is becoming increasingly evident that each type of neoplasm possesses its own specific biological and biochemical properties,²⁸ and hence, it seems reasonable to assume that a chemical compound proved to be effective for inhibiting the growth of one form of cancer will not restrict the growth of an unrelated type. This view

From the Department of Medicine, Stanford University School of Medicine, San Francisco 15, and the Veterans Administration Hospital, San Francisco 21.

Presented before the Section on General Medicine at the 84th Annual Session of the California Medical Association, San Francisco, May 1-4, 1955.

A contribution of the Cooperative Cancer Chemotherapy Research Program of the National Institutes of Health, U. S. Public Health Service. This study was supported by research grants from the National Cancer Institute of the National Institutes of Health, U. S. Public Health Service.

is supported by the observation that the purine antagonist, 6-mercaptopurine, which induces clinical and hematologic remission in a significant number of patients having acute leukemia or chronic granulocytic leukemia, is totally ineffective in chronic lymphocytic leukemia.

During the past 15 years a number of chemical compounds have been discovered that selectively injure certain types of malignant cells in experimental animals and in man. Compounds of proved clinical usefulness or that are currently under investigation at Stanford University School of Medicine and the San Francisco Veterans Administration Hospital are listed in Table 1. The most important compounds in each major category will be discussed briefly.

I. CYTOTOXIC ALKYLATING AGENTS

A. Nitrogen Mustards:

1. Methyl bis (β -chloroethyl)amine HCl (HN_2).

This agent, a member of the aliphatic series of nitrogen mustard compounds (Chart 1), is particularly useful in the treatment of malignant lymphoma, and of limited usefulness in the treatment of chronic leukemia and of metastatic bronchogenic carcinoma. It is ineffective in acute leukemia. The specific indications for employing HN_2 are: (1) Refractoriness to ionizing radiation, (2) extensive visceral involvement, and (3) in combination with ionizing radiation where widespread dissemination already has occurred. The radiomimetic effect of HN_2 is exceedingly rapid, a property that is useful clinically when the need for a therapeutic effect is urgent. The therapeutic usefulness of HN_2 , however, is limited by its toxicity. Toxic manifestations are characterized by immediate and delayed reactions. Immediate reactions consist of nausea and vomiting, and/or thrombophlebitis in the vein into which the agent has been introduced. The delayed reaction is characterized by suppression of hemopoiesis occurring two to three weeks after administration of the agent. Details concerning chemical action, method of administration, pharmacologic and therapeutic effects have been published elsewhere.^{3, 16, 19, 22, 23, 29}

2. N, N-di(2-chloroethyl)-p-aminophenyl- β -propionic acid-(C.B. 1348).

C.B. 1348 is a carboxylic acid derivative in the aromatic nitrogen mustard series (Chart 1) recently released by Haddow and his associates for clinical investigation. In a preliminary report by Haddow¹⁷ it was noted that this compound completely inhibited the growth of the Walker rat carcinoma and had varying degrees of inhibition for the Crocker sarcoma 180, for sarcoma S-37, for the Krebs ascitic

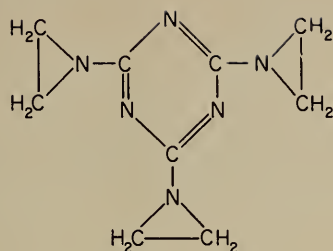
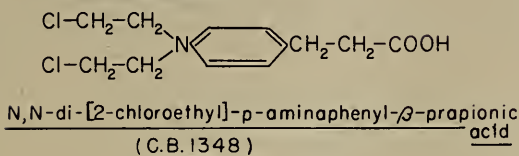
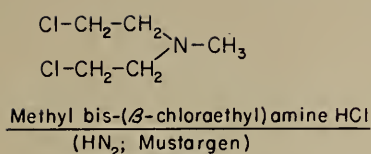
TABLE 1.—Compounds injurious to malignant cells that are clinically useful or are being investigated

- I. Cytotoxic alkylating agents:
 - A. Nitrogen mustards—
 1. Methyl bis (β -chloroethyl)amine HCl—(HN_2)
 2. N, N-di-(2-chloroethyl)-p-aminophenyl- β -propionic acid—(C.B. 1348) *
 - B. Triethylenamines—
 1. 2, 4, 6-triethyleneimino-s-triazine-(triethylene melamine, T.E.M.) *
 2. Triethylene phosphoramidate (TEPA) *
 3. Triethylene thiophosphoramidate (thio-TEPA) *
 - C. Sulfonic acid esters—
 1. 1:4 dimethane-sulfonyloxybutane (Myleran; G.T. 41)
- II. Antimetabolites:
 1. Aminopterin—(4-aminopteroylglutamic acid)
 2. Methotrexate (amethopterin)—(4-amino-N₁₀-methylpteroylglutamic acid)
 3. 6-mercaptopurine (Purinethol, 6-M.P.)
 4. 6-thioguanine*
 5. Azaserine—(0-diazoacetyl-L-serine) *
 6. Desoxypyridoxine*
 7. Daraprim—(2, 4-diamino-5-(4'-chlorophenyl)-6-ethylpyrimidine) *
- III. Hormones—
 1. Cortisone—(Compound E)
 2. Hydrocortisone—(Compound F)
 3. Corticotropin—(ACTH)
 4. Androgens
 5. Estrogens

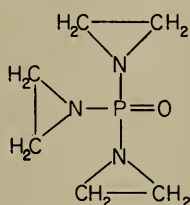
*Not available for general use at present.

tumor, and for transplantable leukemias in mice. In contrast to the aliphatic compound HN_2 , which can be given only by the intravenous route, C.B. 1348 is effective when administered orally. While the authors' experience with this agent is limited, symptoms of gastrointestinal irritation or evidence of hepatic or renal toxicity have not been observed as yet. On higher dosage schedules, leukopenia, anemia, and/or thrombocytopenia may develop after four to six weeks of continuous oral administration, but recovery is prompt when the dose is reduced sharply or when administration of the drug is discontinued altogether. The compound is administered by mouth in a dosage of from 0.1 mg. to 0.4 mg. per kilogram of body weight per day until maximal therapeutic effect has been noted. As a general rule, signs of objective improvement have not been observed in less than three to four weeks, and maximal clinical improvement has not been manifested in less than two to four months of continuous daily administration of the agent. Subjective and objective manifestations of improvement have been noted in one case of Hodgkin's sarcoma (Figure 1), one case of reticulum cell sarcoma of the skin, four cases of chronic lymphocytic leukemia, and two cases of mycosis fungoides. Further clinical trials with this and related compounds are indicated.

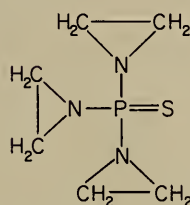
CYTOTOXIC ALKYLATING AGENTS



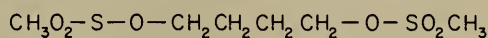
Triethylene-imino-s-triazine
(Triethylene melamine; T.E.M.)



Triethylene phospharamide
(TEPA)



Triethylene-thia-phosphoramide
(Thio-TEPA)



1:4-dimethanesulphonyloxybutane
(Myleran)

Chart 1.—Composition of cytotoxic alkylating agents.

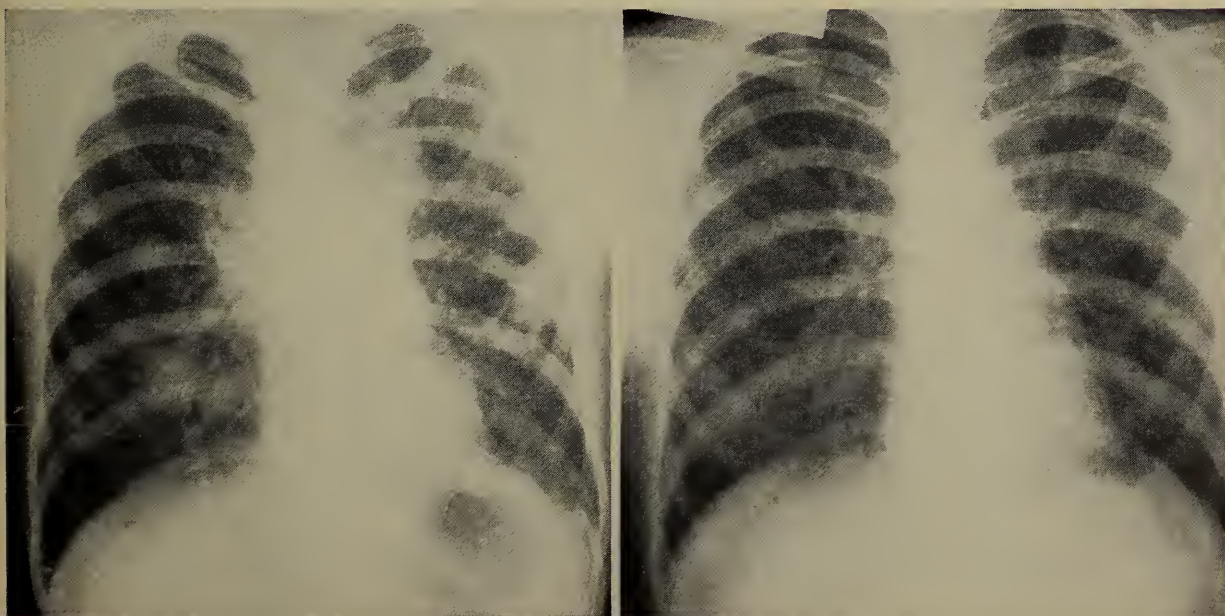


Figure 1.—*Left:* Roentgenogram of the chest in a 9-year-old white girl with Hodgkin's sarcoma, before treatment with the aromatic nitrogen mustard, C.B. 1348. Extensive involvement of the mediastinum, hilar lymph nodes, and lung parenchyma is evident. *Right:* 3½ months later. During this period, the patient received 548 mg. of C.B. 1348. No other therapeutic procedure was employed.

B. Triethylenamines:

1. 2, 4, 6-triethylenimino-s-triazine (*Triethylene melamine, T.E.M.*)

The structural formula for T.E.M. is shown in Chart 1. This compound is closely allied to the nitrogen mustards because of three reacting ethylenamine groups attached to the triazine ring. It has been shown to affect essentially the same spectrum of neoplastic disorders as the nitrogen mustards,^{2, 15, 24, 25} and has the advantage that it can be administered orally as well as intravenously, intrapleurally or intraperitoneally.

For oral administration, the compound is prepared in scored 5.0 mg. and in 1.0 mg. tablets. The drug is given together with 2.0 gm. of sodium bicarbonate, on an empty stomach one hour before the morning meal as a single dose or in divided doses for two successive days. The size of each individual dose depends on the type of malignant disease being treated. Larger doses are required to produce remission in chronic granulocytic leukemia than in chronic lymphocytic leukemia or in the malignant lymphomas. A maximal suppressive effect on the leukocyte count occurs five to seven days after administration of the compound. Hence, it is inadvisable to readminister T.E.M. at intervals shorter than one week.

Toxic manifestations (which are noted in less than half the patients treated with this compound) are characterized by anorexia or nausea occurring two to 12 hours after each dose. Vomiting is unusual. Overdosage is characterized by pronounced suppression of hemopoiesis, leading to hypoplasia or even aplasia of the bone marrow.

Properly administered, T.E.M. will produce remission following a single course of treatment up to 24 months in chronic lymphocytic leukemia, and up to ten months in chronic granulocytic leukemia. It will also produce varying degrees of remission in malignant lymphoma, especially lymphosarcoma, but its usefulness in this group of disorders is limited by its toxic effect on the bone marrow.

2. *Triethylene phosphoramidate (TEPA) and triethylene thiophosphoramidate (thio-TEPA).*

The structural formulae of TEPA and thio-TEPA are shown in Chart 1. These compounds have been found to inhibit the growth of a significant number of malignant tumors in experimental animals. Farber¹⁰ reported that, in man, TEPA administered intramuscularly, in rare instances causes regression of metastatic malignant melanoma confined to the skin or regional lymph nodes. It is far less effective once visceral metastasis has occurred.

Preliminary evidence³⁰ suggests that thio-TEPA, administered intramuscularly, has chemotherapeutic activity in chronic leukemia, in malignant lym-

phoma, and in some cases of anaplastic carcinoma. Bateman¹ reported regression of recurrent or metastatic carcinoma of the breast following the local injection of thio-TEPA directly into the tumor. While the foregoing reports are encouraging, the clinical usefulness of TEPA and thio-TEPA is restricted by a pronounced inhibitory effect on granulocytopenia. Severe and prolonged granulocytopenia may occur following the administration of either compound at two or three day intervals over a period of several weeks.

C. Sulfonic Acid Esters:

1. 1:4 dimethane-sulfonyloxybutane (*Myleran*).

During studies on the alkylating properties of a number of chemical agents, Haddow and his associates¹⁸ found that certain sulfonic acid esters inhibited the growth of various malignant tumors in animals. One of these, Myleran (Chart 1), which inhibited the growth of the Walker rat carcinoma, also exerted a depressive influence on myeloid elements in animals and in man. Consequently, the possible therapeutic effectiveness of Myleran in human chronic granulocytic leukemia was studied intensively by Galton,¹⁴ Petrakis²⁷ and others. Myleran has been found to be highly effective in producing remission in this disease, but it is ineffective in causing remission in chronic lymphocytic leukemia or in acute leukemia.

Myleran is dispensed in tablets containing 2.0 mg. and 4.0 mg. of the drug. It is given orally in divided doses totaling 4.0 to 10.0 mg. per day, the daily dose being reduced gradually as the leukocyte count approaches a normal level. With doses in excess of 10.0 mg. per day, anorexia, nausea and occasionally vomiting may occur and a depressive effect on hemopoiesis may be noted. As the leukocyte count falls and as the size of the daily dose of Myleran is reduced, subjective and objective improvement occur, characterized by a sense of well-being, decrease in the size of the spleen and liver, and a rise in hemoglobin and erythrocyte levels. Once the leukocyte count reaches a normal value, the continued administration of Myleran in a dosage of 2.0 mg. every one to four days usually is necessary to maintain remission. In an occasional case, however, the continued administration of Myleran is unnecessary. A remission lasting seven months after discontinuance of Myleran therapy was observed in a patient 31 years of age with chronic granulocytic leukemia.

II. ANTIMETABOLITES

A large number of antimetabolites currently are being investigated for an inhibitory effect on the growth of various types of neoplasms, and two

FOLIC ACID ANTAGONISTS

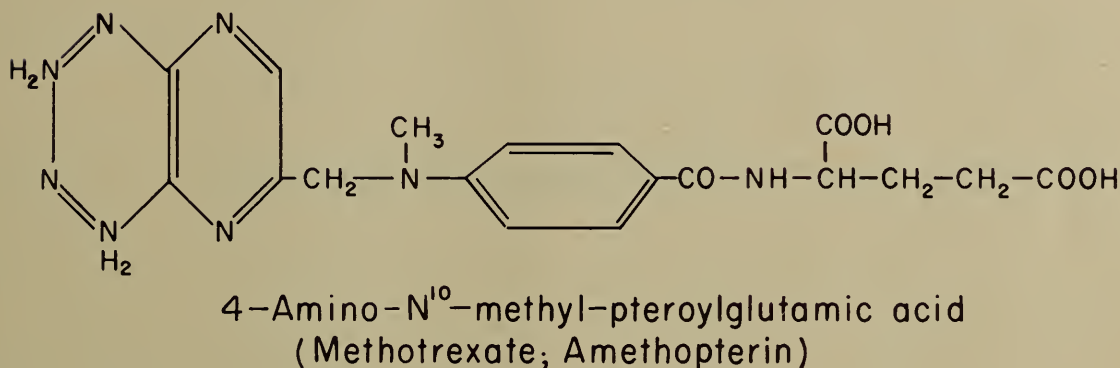
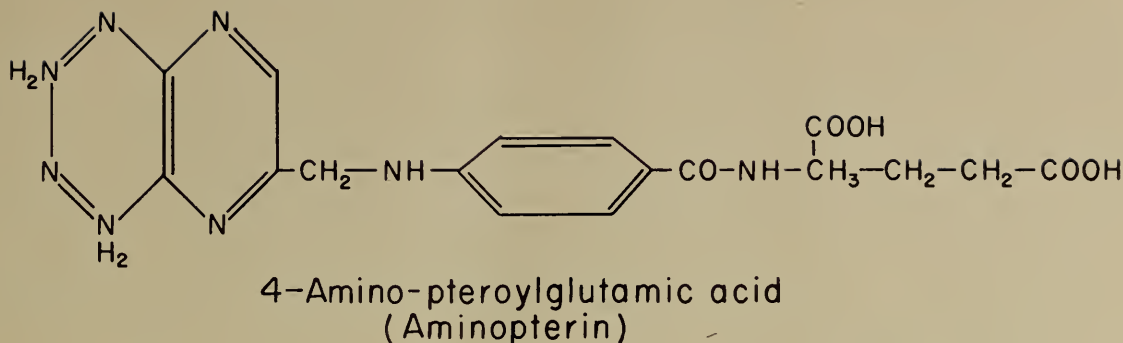
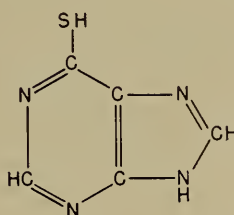


Chart 2.—Structure of folic acid antagonists.

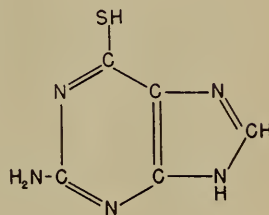
groups of compounds, the folic acid antagonists and the purine antagonists, have been found to be clinically useful because of demonstrable anti-leukemic activity in man. The structural formulae of the most important of these compounds are shown in Charts 2 and 3.

A. Folic Acid Antagonists:

Farber and associates¹¹ in 1948 demonstrated that aminopterin produced varying degrees of clinical and hematologic remission in children with acute leukemia. In subsequent studies by Farber,¹² Burchenal⁴ and others it was noted that from 50 to 65 per cent of children having acute leukemia responded favorably to an initial course of treatment with this compound, but in adults the rate of initial drug-induced remission was far lower (12 to 18 per cent). Unfortunately, aminopterin was found to be extremely toxic, the range between the therapeutically effective dose and the toxic dose being negligible. Toxicity was manifested by the development of ulcerative lesions in the gastrointestinal tract (most frequent in the mouth or throat) or in the vagina, and by moderate to severe depression of hemopoiesis.



6-Mercaptopurine
(6-M.P.)



6-thioguanine

PURINE ANTAGONISTS

Chart 3.—Structure of purine antagonists.

Subsequently, in an attempt to find compounds less toxic than aminopterin, other antagonists of folic acid were prepared and tested for antileukemic activity. One of these, amethopterin (Methotrexate), has been found to produce rates of initial clinical and hematologic remission comparable to those obtained with aminopterin in children and in adults having acute leukemia. This agent appears to be slightly less toxic than aminopterin, although the range between the effective therapeutic dose and the toxic dose is small. Dosage schedules for the

TABLE 2.—Dosage for oral administration of aminopterin and amethopterin

Folic acid antagonists	—Milligrams per Day—	
	Children	Adults
Aminopterin	0.5-1.0	0.5- 2.0
Amethopterin (Methotrexate)	2.5-5.0	5.0-10.0

oral administration of aminopterin and amethopterin are listed in Table 2.

When signs of toxicity develop, it is imperative that the administration of whatever folic acid antagonist is being given be discontinued for several days. Citrovorum factor (folinic acid) then should be given, since this compound has been shown to block the biochemical action of the folic acid antagonists.⁵ Hence, it aids in reversing the toxic manifestations of antifolic acid therapy.

B. Purine Antagonists:

1. 6-mercaptapurine (*Purinethol*, 6-M.P.)

As a result of a long term study by Hitchings, Elion and co-workers,²¹ a number of antagonists of precursors of nucleic acid were developed. One of these, 6-mercaptapurine (6-M.P.), an analogue of adenine and hypoxanthine (Chart 3), has been shown to induce remission in 68 per cent of children having acute leukemia⁶ and in 54 per cent of adults with this disease.²⁰ The rate of initial remission in children, therefore, is approximately the same as that obtained with the folic acid antagonists, but in adults it is significantly higher than that produced by antifolic preparations. For this reason, 6-M.P. appears to be the initial drug of choice for treating adult patients with acute leukemia.

The drug is supplied in scored 50 mg. tablets for oral use. It is administered daily in single or divided doses. The usual dose for the treatment of acute leukemia in children is 2.5 to 3.0 mg. per kilogram of body weight per day. In adults, the dose is somewhat higher (2.5 to 5.0 mg. per kilogram of body weight per day). Administration of 6-M.P. is continued until toxic manifestations develop or until pronounced depressive effect on hemopoiesis is noted. It has been observed that in adults "complete" hematologic and clinical remission can be obtained if the daily administration of the compound can be continued until leukemic leukocytes (stem cells, prolymphocytes, progranulocytes, or promonocytes) disappear from the bone marrow. This usually occurs before complete suppression of erythropoiesis takes place, but it is usually necessary to administer blood transfusions at intervals during the period of treatment. The disappearance of leukemic leukocytes from the bone marrow is followed within five to seven days by rapid regrowth of normal hemopoietic elements. Among 21 adult patients having acute leukemia, four complete remissions and 17 partial remissions were observed.

Toxic manifestations are characterized by anorexia, nausea, vomiting and stomatitis; less frequently, by diarrhea, melena or fever. Treatment with 6-M.P. should be discontinued promptly if nausea and vomiting become severe, if stomatitis develops, or if diarrhea or melena occurs. Cessation of therapy usually is followed by complete disappearance of toxic manifestations within a few days. Treatment in lower dosage then may be resumed if remission has not been induced.

Whether or not it is advisable to discontinue the administration of 6-M.P. during periods of remission has not been determined. It has been the authors' practice to give small doses of the drug as maintenance therapy to patients in partial hematologic remission. When relapse occurs, second or third remissions sometimes can be produced by re-administration of 6-M.P. However, the eventual development of resistance to this agent is high, especially in adult patients.

2. 6-thioguanine.

6-thioguanine (Chart 3) is a purine antagonist that is closely related to 6-M.P. in chemical structure.⁸ It is prepared in 25 mg. tablets and may be given orally in a dosage of 2.0 to 2.5 mg. per kilogram of body weight per day. Whether or not this compound has any advantage over 6-M.P. in the treatment of acute leukemia remains to be determined, but a typical response in a 2-year-old child with acute lymphocytic leukemia is shown in Chart 4.

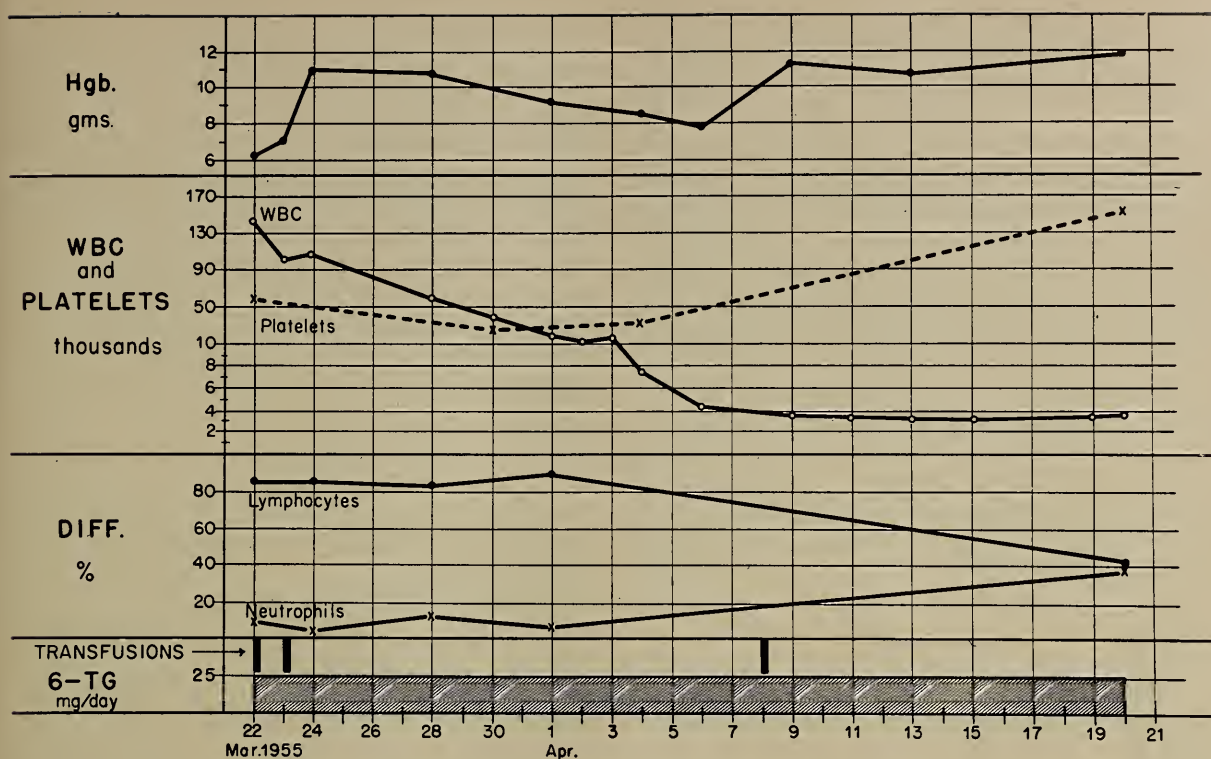
3. 0-diazoacetyl-L-serine (*azaserine*).

The structure of azaserine, derived originally from a species of *Streptomyces*, is shown in Chart 5. This compound has been shown to have anti-leukemic activity in experimental animals³¹ but the results of its use in the treatment of human acute leukemia have been disappointing.⁹ However, Burchenal and co-workers⁷ recently reported the induction of temporary remissions lasting one to twelve weeks in six of fourteen patients with acute leukemia who had become resistant to the administration of 6-M.P. alone. The authors' observations of five patients were similar to Burchenal's, in one case a remission lasting seven months having been obtained. It is possible, therefore, that azaserine will prove to be useful, when given simultaneously with 6-M.P., to patients in whom a resistance to the latter drug has developed.

III. HORMONES

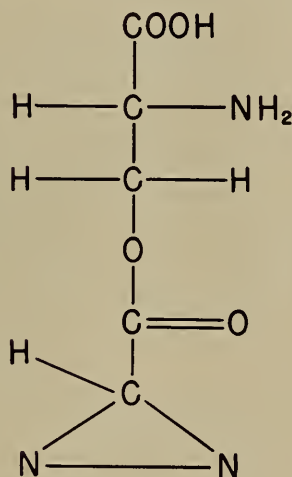
A. Corticotropin, Cortisone, and Hydrocortisone:

In 1950, Pearson and Eliel²⁶ reported good clinical and hematologic remission in 13 of 27 patients with acute leukemia who were treated with cortico-



tropin (ACTH) or with cortisone (11-dehydro-17-hydroxycorticosterone; Compound E). Extensive clinical investigations since that report was published not only confirmed the observations of Pearson and Eliel in acute leukemia but demonstrated significant therapeutic activity in occasional cases of malignant lymphoma that had become refractory to ionizing irradiation or to nitrogen mustard (HN₂) therapy. In 1954 Fessas and co-workers¹³ reported excellent results in acute lymphocytic leukemia following treatment with cortisone or corticotropin. Complete remission was observed in 18 of 22 children (82 per cent) ten years of age or under, and in three of nine older patients. Partial remission was noted in seven additional cases, and no response was obtained in three. Poor results from hormone therapy, however, were observed in patients having acute granulocytic or acute monocytic leukemia.

Corticotropin is available in the form of a suspension in a gel for intramuscular use, or as a dry powder for intravenous or intramuscular use. When administered intravenously, the dry powder is diluted in 500 cc. to 1,000 cc. of isotonic saline or glucose solution and should be given by slow infusion over a period of eight to twelve hours. Cortisone acetate is available in scored 25 mg. tablets for oral use, and in suspension for intramuscular administration. For the treatment of acute leukemia, 40 to 80 mg. of corticotropin, administered



O-diazoacetyl-l-serine
(Azaserine)

Chart 5.—Structure of azaserine.

intramuscularly daily, or 100 to 300 mg. of cortisone, administered orally in four divided doses each day, should be given. Precautions should be taken to minimize the undesirable side effects of hormone therapy by sharply restricting the salt intake and by administering a potassium salt. When

the desired therapeutic effect has been achieved or when the undesirable symptoms of hypercortisonism develop, the dose of either compound should be reduced.

Preliminary studies with hydrocortisone (17-hydroxycorticosterone; Compound F) in the treatment of acute leukemia suggest that this compound is similar in therapeutic activity to cortisone. As the steroid compounds tend to produce a state of euphoria, they are sometimes useful as a supportive measure in the treatment of patients with incurable metastatic tumors of the solid type.

B. Estrogens and Androgens:

The usefulness of estrogenic and androgenic hormones in the treatment of carcinoma of the prostate and in carcinoma of the breast is so well known that a discussion concerning the use of these compounds will be omitted.

DISCUSSION

In the light of the foregoing discussion, it is evident that various types of chemotherapeutic agents inhibit the growth (albeit all too transiently) of different types of neoplastic disease in man. Each main category has rather broad but nevertheless generally specific indications of therapeutic application. The cytotoxic alkylating agents are useful in the treatment of the chronic leukemias, the malignant lymphomas, and mycosis fungoides. The recent introduction of a new aromatic nitrogen mustard, C.B. 1348, by Haddow, et al,¹⁷ may be an important step toward the goal of developing chemical compounds that display maximal therapeutic effectiveness against neoplastic growths and minimal toxicity against normal tissues. Full assessment of the therapeutic value of C.B. 1348, however, is not yet possible.

Folic acid antagonists, the purine antagonists, and the steroid hormones are clearly of value in the treatment of human acute leukemia. The choice of what agent to employ initially in the therapy of acute leukemia, however, is dependent, at least in part, on the age of the patient. A high rate of initial remission in children with acute leukemia can be obtained with cortisone or corticotropin but when relapse occurs, a second remission rarely can be induced by the readministration of either compound. In such instances, repeated remissions may be observed following treatment with either the purine or the folic acid antagonists. In adults having acute leukemia, a higher rate of initial remission can be produced with 6-mercaptopurine than with the antifolic acid compounds or the steroid hormones. Hence 6-mercaptopurine would seem the drug of choice to be used initially in the adult.

In acute leukemia in humans the existence of or eventual development of resistance to antileukemic agents seriously limits the possibility for adequate control of the disease. For this reason, various combinations of chemotherapeutic agents have been utilized in the hope that subsequent remissions could be obtained in drug resistant patients. It was shown by Burchenal⁷ (and later observed by the authors) that the simultaneous administration of azaserine and 6-mercaptopurine will induce remission in some patients with acute leukemia in whom a resistance to 6-mercaptopurine alone has developed.

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REFERENCES

1. Bateman, J. C., and Winship, T.: Treatment of human mammary carcinoma with triethylenethiophosphoramide and oxypentamethylene, *Proc. Am. Assoc. for Cancer Res.*, 2:3, April 1955 (Abstract).
2. Bayrd, E. D., Stickney, J. M., Hall, B. E., and Watkins, C. H.: Clinical observations on the use of triethylene melamine, *Cancer*, 5:336-343, March 1952.
3. Burchenal, J. H., Myers, W. P. L., Craver, L. F., and Karnofsky, D. A.: The nitrogen mustards in the treatment of leukemia, *Cancer*, 2:1-17, Jan. 1949.
4. Burchenal, J. H., Karnofsky, D. A., Kingsley-Pillers, E. M., Southam, C. M., Myers, W. P. L., Escher, G. C., Craver, L. F., Dargeon, H. W., and Rhoads, C. P.: The effects of the folic acid antagonists and 2, 6-diaminopurine on neoplastic disease with special reference to acute leukemia, *Cancer*, 4:549-569, May 1951.
5. Burchenal, J. H., and Babcock, G. M.: Prevention of toxicity of massive doses of amethopterin by citrovorum factor, *Proc. Soc. Exper. Biol. & Med.*, 76:382-384, Feb. 1951.
6. Burchenal, J. H.: The clinical management of the leukemias, *Cancer Res.*, 14:615-624, Oct. 1954.
7. Burchenal, J. H., Murphy, M. L., Tan, C. T. C., Yuceoglu, M., and Karnofsky, D. A.: Combination therapy of acute leukemia with azaserine and mercaptopurine, in press.
8. Elion, G. B., and Hitchings, G. H.: The synthesis of 6-thioguanine, *J. Am. Chem. Soc.*, 77:1676, March 20, 1955.
9. Ellison, R. R., Karnofsky, D. A., Sternberg, S. S., Murphy, M. L., and Burchenal, J. H.: Clinical trials of 0-diazoacetyl-L-serine (azaserine) in neoplastic disease, *Cancer*, 7:801-814, July 1954.
10. Farber, S., Appleton, R., Downing, V., Heald, F., King, J., and Toch, R.: Clinical studies on the carcinolytic action of triethylenephosphoramide, *Cancer*, 6:135-141, Jan. 1953.
11. Farber, S., Diamond, L. K., Mercer, R. D., Sylvester, R. F., Jr., and Wolff, J. A.: Temporary remissions in acute leukemia in children produced by folic acid antagonists. 4-amino-pteroylglutamic acid (aminopterin, *New Eng. J. Med.*, 238:787-793, June 3, 1948.
12. Farber, S.: Some observations on the effect of folic acid antagonists on acute leukemia and other forms of incurable cancer, *Blood*, 4:160-167, Feb. 1949.
13. Fessas, P., Wintrobe, M. M., Thompson, R. B., and Cartwright, G. E.: Treatment of acute leukemia with cortisone and corticotropin, *Arch. Int. Med.*, 94:384-401, Sept. 1954.
14. Galton, D. A. G.: Myleran in chronic myeloid leukemia. Results of treatment, *Lancet*, 1:208-213, Jan. 31, 1953.
15. Gellhorn, A., Kligerman, M. M., and Jaffe, I.: Triethylene melamine in clinical cancer chemotherapy, *Am. J. Med.*, 13:428-431, Oct. 1952.
16. Goodman, L. S., Wintrobe, M. M., Dameshek, W., Goodman, M. J., Gilman, A., and McLennan, M. T.: Nitrogen

mustard therapy; use of methyl-bis (β -chloroethyl)-amine hydrochloride and tris-(β -chloroethyl)-amine hydrochloride for Hodgkin's disease, lymphosarcoma, leukemia, and certain allied and miscellaneous disorders, J.A.M.A., 132:127-132, Sept. 21, 1946.

17. Haddow, A.: Experimental and clinical aspects of the action of various carboxylic acid derivatives in the aromatic mustard series. Ciba Foundation Symposium on "Leukemia Research," Little, Brown & Co., Boston, 1954, pp. 196-204.

18. Haddow, A., and Timmis, G. M.: Myleran in chronic myeloid leukemia. Chemical constitution and biological action, Lancet, 1:207-208, Jan. 31, 1953.

19. Hall, B. E.: Chemotherapy of leukemia and allied disorders, Med. Clin. North Am., 37:1755-1767, Nov. 1953.

20. Hall, B. E., Richards, M. D., Willett, F. M., and Feichtmeir, T. V.: Clinical experience with 6-mercaptopurine in human neoplasia, Ann. N. Y. Acad. Sci., 60:374-384, Dec. 6, 1954.

21. Hitchings, G. H., and Elion, G. B.: The chemistry and biochemistry of purine analogs, Ann. N. Y. Acad. Sci., 60:195-199, Dec. 6, 1954.

22. Jones, R., Jr.: Medical management of patients with incurable cancer, Veterans Admin. Tech. Bull., TB 10-107: 1-24, March 10, 1955.

23. Karnofsky, D. A.: Nitrogen mustards in the treatment of neoplastic disease, Adv. in Int. Med., 4:1-75, The Year Book Publishers, Inc., Chicago, 1950.

24. Karnofsky, D. A., Burchenal, J. H., Armistead, G. C., Jr., Southam, C. M., Bernstein, J. L., Craver, L. F., and

Rhoads, C. P.: Triethylene melamine in the treatment of neoplastic disease, Arch. Int. Med., 87:477-516, April 1951.

25. Kravitz, S. C., Diamond, H. D., and Craver, L. F.: The clinical use of triethylene melamine, Blood, 7:729-742, July 1952.

26. Pearson, O. H., and Eliel, L. P.: Use of pituitary adrenocorticotrophic hormone (ACTH) and cortisone in lymphomas and leukemias, J.A.M.A., 144:1349-1353, Dec. 16, 1950.

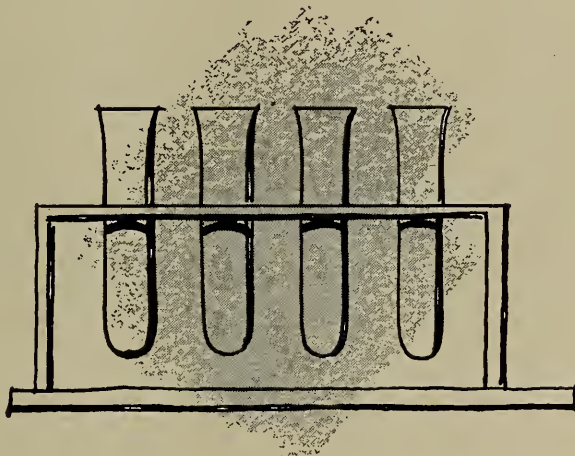
27. Petrakis, N. L., Bierman, H. R., Kelly, K. H., White, L. P., and Shimkin, M. B.: The effect of 1, 4-dimethanesulfonyloxybutane (G.T. 41 or Myleran) upon leukemia, Cancer, 7:383-390, March 1954.

28. Rhoads, C. P.: Rational cancer chemotherapy, Sci., 119:77-80, Jan. 15, 1954.

29. Roswit, B., and Kaplan, G.: The role of nitrogen mustard (HN_2) as a systemic adjunct to the radiation therapy of certain malignant diseases, Am. J. Roentgenol., 61:626-636, May 1949.

30. Shay, H., Zarafonitis, C., Smith, N., Waldow, I., and Sun, D. C. H.: Treatment of leukemia with triethylene thiophosphoramide (thio-TEPA). Preliminary results in experimental and clinical leukemia, Arch. Int. Med., 92:628-645, Nov. 1953.

31. Stock, C. C., Reilly, H. C., Buckley, S. M., Clarke, D. A., and Rhoads, C. P.: Azaserine, a new tumor-inhibitory substance. Studies with Crocker mouse sarcoma 180, Nature, 173:71-73, Jan. 9, 1954.



Nonpenetrating Abdominal Injuries

WILLIAM BROCK, M.D., and GEORGE CUSICK, M.D., Stockton

NONPENETRATING OR BLUNT INJURIES to abdominal organs present a constant problem in any hospital in which patients with traumatic injury are cared for. Such injuries are common in occurrence and the management of them is extremely difficult. In the past seven years the authors have observed 93 cases of this kind. Data on the site or nature of injury, surgical treatment and mortality follow:

Organ Injured or Nature of Injury	No. Cases	No. Cases Operated		Mortality Rate (Per Cent)
		On	Deaths	
Spleen	30	29*	5	16
Kidney	23	2†	0	0
Urinary bladder	9	9	0	0
Liver	10	8	5	50
Stomach	1	1	0	0
Small bowel.....	7	7	1	14
Colon	5	5	1	20
Diaphragm	5	4	0	0
Pancreas	3	(All associated with other abdominal injuries) *		
Ruptured pregnant uterus	1	0	0	0
Hemoperitoneum	2	0	0	0

*One splenectomy performed at another hospital.
†Includes one ruptured renal neoplasm.

Most of these problems are owing to traffic accidents at high speed, and multiple injuries are common. Dealing with the abdominal injury is usually merely a part of the treatment of a patient who has been severely hurt in a collision. The association of one injury with multiple major injuries of other visceral and skeletal structures may obscure proper recognition and render the application of appropriate treatment more difficult. In the previously mentioned 93 cases there were, in addition to the abdominal injury, more than 150 fractures, simple or compound. Major intracranial or thoracic injuries were observed in approximately 20 per cent of the cases. Diagnosis was particularly difficult in patients who were comatose from cerebral trauma. Alcoholic indulgence, observed in a high proportion of cases, presented additional difficulties.

The overall mortality in the present series was 12.9 per cent. The site of injury and the cause of death were as follows:

Cause of Death	Organ Injured			
	Spleen	Liver	Small Bowel	Colon
Hemorrhage and multiple injuries	2	2	....	....
Renal failure	1	1	1	1
Aspiration of fluid.....	1	....	....	....
Multiple injuries	1	2	....	....

Chairman's Address: Presented before the Section on General Surgery at the 84th Annual Session of the California Medical Association, San Francisco, May 1-4, 1955.

• Nonpenetrating abdominal injuries are commonly seen in a general hospital. High speed traffic accidents are responsible for the majority of these injuries. The mortality rate is high. Deaths were from associated injuries, failure to recognize abdominal trauma, hemorrhage and from acute renal insufficiency. Careful observation of every severely injured person, vigorous treatment of hemorrhagic shock with whole blood, and prompt surgical intervention when indicated will improve the mortality figures.

Concomitant multiple injuries to the cranium, thorax and skeletal structures contributed significantly to fatality in three cases. Hemorrhage, either recognized or unrecognized, was directly responsible for four deaths. In three of these cases the bleeding was from severe liver lacerations (in one of which there was also bleeding from multiple intra-abdominal injuries) and in one from a severely lacerated spleen in a young child who was thought to have a cranial injury.

Renal insufficiency led to four deaths although associated factors played accessory roles. These fatalities followed long existing hemorrhagic shock either before arrival or after admission to the hospital. One death resulted from aspiration of blood on the operating table. An intratracheal tube had not been used.

Severe multiple extraabdominal or intraabdominal injuries were present in seven of the twelve patients who died.

The high mortality rate reflects in part the severity of the injuries. However, with more rapid evaluation of the situation of the individual cases and more vigorous treatment of the hemorrhagic shock, some of the deaths might be classified as preventable.

DIAGNOSIS

Successful treatment rests upon the establishment of a diagnosis or strong suspicion of hemorrhage or of contamination from hollow viscera. Accurate diagnosis depends in great part on the acuity of the individual examiner. Knowledge of the mode of injury, the symptoms and physical findings, and the laboratory and x-ray aids should lead to a proper diagnosis in most cases.

In many cases in the present series the diagnosis on admission from the emergency ward did not

indicate a strong suspicion of abdominal injury. The majority of the patients had serious associated injuries which focused the examiner's attention. In others the signs and symptoms of abdominal injury had not progressed to a point to be readily recognizable. This emphasizes the absolute necessity of careful and frequent reevaluation of each severely traumatized person. A changing clinical picture may be all important in reaching a final decision.

History of Injury

Visible signs of contusion to the abdominal parietes were not often present. History of a blow to a specific abdominal area was occasionally of value. The majority of patients gave few details; they had but vague memory of an automobile accident. Data on the kind of accident and the organs injured follow:

Type	Liver	Spleen	Kidney	Bladder	Gastro-intestinal Tract	Diaphragm
Vehicular..	7	22	16	9	7	5
Blows	3	2	6	0	5	0
Falls	0	4	1	0	1	0

In several cases no history of abdominal injury was obtained prior to operative intervention. Lack of information of this sort would seem to be more likely if the patient is a child or if he was under strong influence of alcohol at the time of injury. Another factor that may confuse diagnosis is that the injury may have sufficiently antedated the present complaint as to be disregarded.

Two illustrative cases follow:

CASE 1. A three-year-old child was admitted to the hospital because of distention and abdominal pain. Severe signs of peritonitis led to laparotomy. A large tear in the jejunum was found. Subsequent questioning revealed that there had been a blow to the abdomen.

CASE 2. A 36-year-old woman was admitted to the hospital because of the onset of severe sudden pain in the left upper quadrant of the abdomen. Similar pain of minor degree had occurred during the previous several weeks. Rapidly increasing anemia developed after 24 hours' observation and signs of peritonitis progressed. Upon laparotomy a secondary rupture of the spleen was observed. Subsequent questioning evoked that the causative injury had occurred four months previously.

Liver and Spleen

Because of the location of the liver and spleen under the protective barrier of the thoracic cage, thoracic trauma was associated with injury to the liver and spleen in 23 of the 40 cases of damage to those organs in the present series, as follows: Segmental rib fractures in 12 cases, hemopneumothorax in four cases, contusion of myocardium in two, and mediastinal hemorrhage, lacerated peri-

cardium and hemopericardium in one case each. Hence, when severe thoracic injuries are present, possible injury to the solid upper abdominal viscera should be suspected. In addition, referred pain from above the diaphragm to the abdominal parietes may present confusing evidence.

Symptoms of upper abdominal pain, abdominal tenderness and spasm were consistently observed. The presence or absence of peristalsis was of little value. Shoulder pain was present in about 50 per cent of patients with splenic injuries. This sign may be elicited only on deep inspiration, or with the patient in the Trendelenburg position or with manual pressure in the left upper quadrant.

Signs of blood loss were consistently observed and were particularly significant in the absence of external bleeding or hemorrhage into soft tissues or the pleural cavities. The majority of the patients were in varying degrees of hemorrhagic shock when first observed. Pallor, tachycardia and lowered blood pressure were the most reliable indications of loss of blood.

Initial hemoglobin or hematocrit determinations, although of value, were of much less value in estimating loss of blood. A progressive decrease in hemoglobin or packed cell volume, or failure to respond or to be maintained on whole blood therapy was a more reliable indication of internal bleeding. Leukocytosis was so consistently observed it was considered to be good confirmatory evidence of internal hemorrhage.

Delayed Splenic Hemorrhage

The clinical manifestations of delayed hemorrhage are commonly associated with splenic injury. In the absence of an initial episode of hemorrhagic shock, or after an initial response to infusion of whole blood, bleeding may recur at an alarming rate. Operative observations revealed that usually the bleeding is temporarily tamponaded by a perisplenic hematoma, although secondary ruptures of subcapsular hematomas may occur. The initial injury may have been trivial and may be forgotten by the time bleeding recurs.

In six of the 29 cases in which splenectomy was done in the present series, the operation was carried out after elapse of four days to four months from the time of the initial injury. In most cases there was some suspicion of splenic injury, but because of injuries to other organ systems and apparent cessation of bleeding following the administration of blood, operation was deferred. In two of the cases, splenic injury was completely unsuspected. When conservative treatment of injuries to solid viscera is attempted, as it may be sometimes because of factors contraindicating operation, cross matched blood should be kept close at hand.

Two illustrative cases follow:

CASE 1. A 22-year-old man was admitted to the hospital following an automobile accident. He was in mild shock and complained of severe pain in the chest. Upon examination a crushing injury of the left chest was noted and there was marked subcutaneous emphysema and hemothorax, evidence of pericardial effusion and fractures of two lumbar vertebrae. The patient rapidly recovered from shock. Intraabdominal injuries were suspected, but since there was rapid response to whole blood, laparotomy was deemed inadvisable in light of the associated injuries to the chest. During the next seven days large amounts of bloody fluid were drawn from the left chest by thoracentesis. On the seventh hospital day, severe abdominal pain and shock developed. Upon laparotomy, a ruptured spleen with an old perisplenic hematoma and fresh bleeding were observed.

CASE 2. A 28-year-old man came to the emergency ward in an alcoholic condition complaining of a scalp laceration and pain in the right shoulder which he said were caused by injury in a fight. X-ray films showed a right acromioclavicular separation. During the next week the patient was observed twice in the orthopedic clinic. Twelve days later he was admitted to the hospital following an episode of severe abdominal pain followed by mild shock. Upon laparotomy a huge perisplenic hematoma was observed and there was evidence of recent hemorrhage.

Gastrointestinal Tract

All segments of the gastrointestinal tract are susceptible to injury. In the present series, the incidence of gastrointestinal injuries was as follows: Stomach, one; pancreas, three; jejunum, two; ileum, five; colon, five.

The traumatic force is frequently a direct blow on the abdominal wall and knowledge of the kind and the site of the blow may be helpful in localizing the injury. Signs of peritoneal irritation usually unassociated with signs of loss of blood were commonly observed. Mesenteric bleeding may present a picture indistinguishable from that of injury to solid viscera. Delayed perforations secondary to contusion and necrosis or to mesenteric injury may occur.

Radiological evidence of a pneumoperitoneum was noted in a few cases. Pronounced leukocytosis

was observed. Elevated serum amylase values may be of help in pancreatic injuries.

Diaphragm

Diaphragmatic injuries may cause obscure or dramatic symptoms. Severe blows or crushing injuries were the usual causes in the present series. Respiratory or abdominal symptoms may dominate the clinical picture. Severe thoracic or upper abdominal visceral injuries are commonly associated. In two cases in the series the injury was unsuspected and was found only on exploration in association with a ruptured spleen. X-ray films of the chest may be most helpful and barium studies are of confirmatory value if abdominal viscera are suspected to be in the chest.

Kidney and Bladder

Hematuria is commonly observed in severely injured patients. If unable to void, these patients should have catheterization immediately. Gross hematuria or other suspicion of an injured bladder calls for a contrast cystogram. A fractured pelvis was present in six of the cases in the present series in which hematuria was a symptom. Renal injuries may be localized by pain, tenderness, spasm or fullness in the offending flank. Because abdominal symptoms commonly are referred from elsewhere in such cases, careful observation to rule out other visceral injuries is necessary. Chest injuries and other visceral injuries are commonly associated. Intravenous pyelography is of value in selected cases.

TREATMENT

Prompt surgical intervention is of vital importance to prevent hemorrhage or continued peritoneal soiling. Conservative observation may be advisable in cases of suspected hemorrhage of not alarming degree when associated with severe thoracic or cerebral injuries. Decision to operate may be made only after a period of careful observation. Liberal use of whole blood is the single most important factor in lowering mortality rates. In the presence of continuing hemorrhage, operation should not be unnecessarily delayed. Good anesthesia is required and wide surgical exposure is mandatory.

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Basal Cell Carcinoma of the Nose

Treatment with Chemosurgery

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THE NOSE and the adjacent areas of the face are the most common sites of basal cell carcinoma. The Tumor Registry and chemosurgery group at the University of California Hospital and the authors in their private practice have observed that the nose is the most frequently involved area.

Embryologically the nose evolves from the fusion of the nasal part of the nasal process and the lateral nasal processes at five to eight weeks of development.¹ The midline of the nose from the root to the apex, or tip, is contributed by the nasal process and the alae and adjacent cheeks and part of the upper lip by the lateral nasal processes. In the migration of these anlage to their final positions, they displace the medial nasal processes which migrate caudad to form the upper lip. The margins of the optic nasal grooves which are the precursors of the nasolacrimal ducts are fused in this development.

The presence of so many fusion planes may explain the occurrence of multiple hamartomas in the area. This is consistent with the concept that basal cell carcinomas originate from epidermal basal cells, especially those with a tendency to gland formation. Certainly, bits of early epidermis may be trapped by the fusion of two surfaces in this embryologic process. The view that basal cell carcinomas originate from adnexal primordia is also consistent with this hypothesis. Lever² expressed belief that these carcinomas originate from incompletely differentiated embryonal cells. Embryonic hair follicles are demonstrable at eight weeks of development. If these are the true anlage, they are deep-seated and might be expected to result in deep carcinomas. Epithelial germs of sebaceous glands and hairs are present on the nose, and these are types of differentiation seen in these carcinomas.

Histologically, the nonorganoid hamartoma group in which basal cell carcinomas are classified may be undifferentiated or differentiated. The former includes solid and pigmented basal cell tumors. The solid type is composed of masses of tumor cells showing peripheral palisading and central

- Basal cell carcinomas of the nose probably originate from embryologic cell rests left between cartilages and bones in the fusion and migration of the nasal precursors. Some carcinomas have been found to invade to the mucosal surface between subcutaneous structures or around the alar margins. Recurrences are particularly likely to develop deep extensions due to overlying scar tissue.

In many cases, chemosurgical removal has disclosed unsuspected deep and lateral extensions. It is the treatment method of choice for many such lesions.

random arrangement of the nuclei. Variable inflammatory reaction and fibrous or mucoid change of the surrounding connective tissue may be present. Some lesions, although undifferentiated, show two types of cells. One type has small, dark, elongated, deep-staining basophilic nuclei, and the other has large pale-staining vesicular nuclei. The former frequently form the deep invading strands of carcinomas. Pigmented basal cells are probably immature hair matrix cells. Both types are seen on the nose.

Differentiation in basal cell carcinomas may be toward sebaceous or apocrine glands or hair follicles. These are the cystic, adenoid, and keratotic types respectively. Despite the lack of apocrine glands on the nose, some carcinomas of adenoid structure are seen. The occurrence of cystic and keratotic types is consistent with the abundance of pilosebaceous elements on the nose.

Over three hundred basal cell carcinomas are listed in the Tumor Registry at the University of California Hospital. One hundred and twenty-three met the following minimum criteria. All lesions were limited to the nose in extent. All were observed by physicians for a minimum of two years—a length of time chosen because chemosurgery has been done at the hospital for only the past three years. Nasolabial fold and inner canthus lesions were omitted, despite interest in them, because of the peculiar problems they present.

Ninety-three of the tumors that met minimum criteria were lesions treated for the first time; the remainder were recurrent. The lesions not previously treated had been present for from five weeks

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to 30 years when first observed. (The shorter time was the span between two visits to a dermatologist.) Fifty-three were in men, 40 in women. The age range of patients was from 27 to 85 years and the number of patients in various age brackets were:

25-29 years, one patient	60-69 years, 38 patients
30-39 years, two patients	70-79 years, 17 patients
40-49 years, six patients	80-85 years, 8 patients
50-59 years, 21 patients	

Thirteen patients had additional basal cell carcinomas on the nose. Fourteen had basal cell tumors in other areas. Six had additional basal and squamous cell carcinomas. Thirteen had no other basal cell carcinomas, but had squamous cell carcinomas.

In the group of 123 cases in which treatment by x-ray, radium, radioactive phosphorus (P^{32}) surgical operation, curettage and desiccation is accurately known, there were 13 recurrences. Following are reports of representative cases.

CASE REPORTS

CASE 1. A woman 57 years of age had an untreated lesion on the dorsum of the nose of one year's duration. It was treated by curettage and desiccation and recurred in two years. The recurrence was treated with radium, 0.5 mm. brass filtration, for 12 hours and there was recurrence in six months. It was treated with 5,076 r with 0.25 mm. copper plus 1 mm. aluminum filtration. The area has remained clear 6 years.

CASE 2. The patient, a woman aged 65 years, had a lesion on the dorsum of the nose for 20 years. It had been treated after five years and again after 16 years with radium. This recurrence was treated by curettage and desiccation, and there was then recurrence after two years. Retreatment was by curettage and desiccation and 3,000 r of 200 kilovolt peak x-ray. The site had been clear for ten years at last report.

CASE 3. A 57-year-old woman had a carcinoma of the ala for many years that had been "burned" five times. It was treated by curettage and desiccation, and recurred in five years. Retreatment by curettage and desiccation was carried out and at last report four years later the site was clear.

CASE 4. A woman 63 years of age had a tumor of the dorsum of the nose excised. Growth recurred in three months and was excised. There again was recurrence in three months, requiring radical excision including extension to the nasolabial fold. At last report the site had remained tumor-free for three years.

CASE 5. The patient, a woman aged 63 years, had an untreated carcinoma of the dorsum of the nose for more than a year. X-ray to the amount of 4,500 r was administered, but the lesion recurred in three years. It was then widely excised and the site had been clear three years at last report.

CASE 6. A 63-year-old woman had an untreated lesion of the dorsum of the nose for five years. Treatment with radioactive phosphorus, 6,000 roentgen equivalent physical, was followed by recurrence in six years. The lesion was retreated by curettage and desiccation and at last report had not recurred.

CASE 7. The patient, a woman 61 years of age, had had a carcinoma of the dorsum of the nose treated surgically 25 years previously. Recurrence 25 years later—a lesion 3 by 4 cm. in diameter—was treated by 5,468 r (factors unknown) x-ray. There was further recurrence after a year and a half of observation.

CASE 8. A 58-year-old man had a carcinoma at the side of the nose which was treated with radioactive phosphorus. The tumor recurred and was retreated with 5,600 r. At last report, five years later, there was no further recurrence.

An attempt to explain the mechanism of recurrent lesions can be made when they are investigated and treated by chemosurgery.³ The following reports illustrate several important concepts.

CASE 9. The patient, a woman of 43 years, had a basal cell tumor at the side of the nose which was treated by curettage and desiccation several months after it was first noted. It recurred after four years and was excised. The lesion recurred again after another five years. As the margins of the surgical specimen revealed residual tumor, the patient was referred for chemosurgical excision. The lesion, measuring 1.6 by 2 cm. in diameter on the surface, was found to extend irregularly in all directions to a diameter of 3 by 4 cm. but remained superficial.

CASE 10. A 50-year-old woman had a midline nasal tip tumor which was treated by curettage. The lesion recurred as a papule, 1 cm. in diameter. Upon chemosurgical treatment, a layer of actively proliferating basal cell carcinoma was observed at the surface. Beneath this was a layer of tumor enmeshed in scar tissue but showing active marginal growth to a diameter of 2.5 cm. The tumor invaded actively between the major alar cartilages at their junction with the lateral cartilages and terminated beneath the mucosa on the left side of the septum. Loss of the nasal tip resulted. The area had remained tumor-free for three years at the time of latest report.

CASE 11. The patient, a woman 53 years of age, had a nose tip lesion treated by curettage and desiccation four years before chemosurgical therapy was done, and by curettage and desiccation plus x-ray two years before chemosurgery. The recurrent lesion was traced between the cartilages to a tumor-free plane on the mucosa of the septum. The site has remained clear for two years. Chemosurgical tissue-sparing permitted saving the major nasal cartilages and septum, facilitating grafting.

CASE 12. A woman of 67 years had a slowly growing lesion on the left ala that reached a diameter of only 1 cm. in two and a half years. It had

not been treated, but the alar margin was retracted by spontaneous sclerosis. Chemosurgery showed that the carcinoma extended approximately 2 cm. cephalad from the alar margin. It extended around the edge and beneath the mucosa for 1 cm. The fibro-fatty tissue of the ala was invaded, but the major alar cartilage was unaffected. After healing, a split thickness skin graft was placed, with an excellent cosmetic result two years later.

CASE 13. A 37-year-old woman had an epithelioma on the right side of the nose at the alar fold which had been treated three years previously by x-ray (factors unknown). The margin of the ala was retracted. Recurrences were noted on the skin and the mucosal surfaces; the latter were deep along the floor of the nose. Chemosurgical excision showed that the two actively growing sites were connected through strands of basal cells enmeshed in scar tissue at the previous treatment site. The tissue defect was limited to the fibro-fatty tissue. The remaining major alar cartilage provided an excellent graft site.

DISCUSSION

Since basal cell carcinomas probably originate from elements that are deep seated embryologically, it is important to bear in mind that a tumor at the surface may have its origin between the nasal cartilages or bones. The possibility of a concurrent deep growth toward the mucosa must also be considered. This has been demonstrated in lesions treated chemosurgically and is especially true of recurrent basal cell carcinomas.^{4,5} Surgical excision frequently requires grafting because of poor mobility of nose skin. In addition, removal must be deep. Successful treatment by x-ray for either initial or recurrent lesions requires filtered radiation to the maximum hardness consistent with avoidance of chondritis.

In an effort to evaluate the depth to be employed in curettage and desiccation, we have used what has

come to be called at the University of California Hospital, the "chemo check." Following curettage with successively smaller curettes, the chemosurgical fixative has been employed in place of desiccation. The fixative has been applied to fix tissue to a depth corresponding to the depth usually reached by desiccation. In many instances the first horizontal excision and vertical sections through the excised material have indicated complete removal by the curette. In some cases three excisions have been required, indicating that the tumor would probably have recurred at a level below the depth reached by desiccation. Each excision removed 1 to 2 mm. of tissue. In a few instances, unsuspected marginal extensions were discovered. Desiccation, therefore, should be deep, especially when the tumor overlies junction lines of cartilage, bone and fat.

The most important therapeutic consideration, whatever the method used, is to go deep enough to destroy the entire tumor on the first treatment. Although marginal recurrences are relatively easy to retreat, deep residual tumors can grow to significant size before detection if trapped beneath scar tissue or graft. Treatment should be carried around the margins of the alae and even on to the mucosa for carcinomas of this area. Chemosurgical treatment is the method of choice where cancer borders are indefinite or tissue-sparing is an important consideration.

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REFERENCES

1. Jordan, H. E.: Textbook of Embryology, New York, D. Appleton-Century, 1942.
2. Lever, W. F.: Histopathology of the Skin, Philadelphia, J. B. Lippincott, 1953.
3. Mohs, F. E.: Chemosurgical treatment of cancer of the nose, Arch. Surg., 53:327, 1946.
4. Mohs, F. E.: Chemosurgical treatment of cancer of the face, Arch. Dermat. & Syph., 56:143, 1947.
5. Mohs, F. E.: Chemosurgical treatment of cancer of the skin, J.A.M.A., 138:564, 1948.



Dental Extraction During Dicumarol Therapy

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IN ADMINISTERING long term antithrombotic therapy with dicumarol, it is a common practice to warn patients against the recognized hazards of prothrombin reduction, including the danger of hemorrhage following dental extraction. It is generally agreed that extraction should not be done until the prothrombin time is allowed to return to normal.⁵ Failure to instruct one patient, however, resulted in several experiences which revised the authors' opinion on this matter. The patient, on an office visit for routine prothrombin determination, mentioned that he had had several teeth extracted recently (Table 1, Case 1). The dentist was called, was surprised to learn that the patient had been taking dicumarol, and said there had been no unusual bleeding.

In another case (Case 2, Table 1), after cerebral thrombosis with hemiplegia, the patient received dicumarol for one and one-half months and the prothrombin concentration was maintained between 20 and 50 per cent. After a severe attack of diarrhea lasting several days, hemiplegia recurred, and the prothrombin concentration was found to be 100 per cent. The dicumarol dosage was increased and again the concentration was reduced to between 20 and 50 per cent and so maintained by continuous therapy. Three years later, when dental extraction became necessary, the oral surgeon was loath to extract the teeth without discontinuance of dicumarol. The patient was reluctant to discontinue dicumarol. The authors hesitated to make a decision. An able advocate, the patient pleaded his case well in a letter to the oral surgeon:

"... If I desist from taking dicumarol for four days there is the possibility that I might have another thrombosis. If I do take it, there is another possibility (which I personally think is somewhat less) of excessive bleeding from the extraction. . . . It is my deliberate desire and deliberate wish to take the second risk, i.e. the risk of some excessive hemorrhage rather than the risk that would be involved from ceasing to take dicumarol. . . ."

Three teeth were extracted without unusual bleeding, and a fourth was extracted later.

After these two experiences, we had greater courage in continuing antithrombotic therapy through

• Extraction of 14 teeth in six patients taking dicumarol caused no unusual bleeding. Discontinuance of dicumarol prior to dental extraction should not necessarily be a routine procedure; in certain persons with a demonstrated strong tendency to recurrent thrombosis, dicumarol should be continued, based on the decision that the danger of clotting without the drug is greater than the danger of bleeding with the drug.

dental extractions with other patients. Altogether, six patients in our care have had 14 extractions. The last patient had a first molar extracted at a time the prothrombin concentration was 14 per cent. He "bled a little more than usual," the oral surgeon reported, but bleeding was controlled without difficulty. It is especially significant that the average age of these patients was over 65 years, for bleeding is more likely to occur in persons in the higher age brackets because of degenerative vascular lesions. In younger patients with rheumatic heart disease whose blood vessels are in better condition, the danger would be less.

DISCUSSION

The results of these six cases indicated that the risk of bleeding from dental extraction during dicumarol therapy is much less than has been suspected. This can be reasonably explained. In a raw, bleeding area in an internal, inaccessible wound, pressure cannot be applied, and the thromboplastin essential to clotting is swept away by the blood flow. In external surface bleeding, however, pressure can be applied and there is tissue juice available as a source of thromboplastin; therefore the bleeding usually is easily stopped. However, this report should not be construed as evidence that there is no need ever to discontinue dicumarol for dental extractions. The prothrombin deficiency presumably could lead to serious bleeding, although no instances have been reported.

Most patients can safely discontinue dicumarol for four days. Thirteen of 14 patients with rheumatic heart disease and multiple embolism reported by Tulloch and Wright⁵ had no bad effects from stopping dicumarol before dental extraction. In some patients, however, thromboembolic episodes apparently may develop quickly. In chronic cardiovascular disease in which the lesions inciting thrombosis do not heal but continue as a constant

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TABLE 1.—Results following dental extraction in patients receiving dicumarol therapy.

Case	Sex and Age	Diagnosis	Teeth Extracted	Prothrombin Concentration (Per Cent)	Statement of Dentist
1.	M 71	Coronary artery disease; angina pectoris	Upper right molar Upper left molar Upper right bicuspid	35 34 19	"No difficulty in stopping bleeding. Gums not sutured."
2.	M 76	Recurrent cerebral thrombosis; two episodes hemiplegia	Three upper incisors Upper first molar	39 20	"Extracted three teeth without excessive bleeding . . . Not necessary to place packs in the wounds." "Normal amount of bleeding."
3.	M 56	Cerebral thrombosis; two episodes of hemiplegia	Right upper 2nd bicuspid Second and 3rd right upper molars	22 24	"No excessive bleeding and made a good recovery."
4.	M 55	Cerebral thrombosis; hemiplegia; diabetes	Lower right 2nd bicuspid	28	"No difficulty in stopping bleeding. A normal blood clot formed in 20 minutes."
5.	M 64	Rheumatic heart disease; cerebral embolism	Lower left bicuspid and upper right bicuspid	51	"No unusual bleeding. Blood clot formed normally."
6.	M 72	Coronary artery disease; myocardial infarction	Lower right first molar	14	"Bled a little more than usual, but with pressure packing was controlled nicely."

thrombotic hazard, the rise in coagulability that follows cessation of the drug at times may be followed closely by recurrent thromboembolism.

One of the 14 patients reported upon by Tulloch and Wright⁵ developed a cerebral embolus and four days later a brachial artery embolus, which he survived. Facquet² reported upon one patient with rheumatic heart disease who developed a cerebral embolus and died when the drug was discontinued as a prelude to dental extraction. Cosgriff,¹ reporting a series of 26 patients with chronic rheumatic valvular disease with systemic arterial embolism, stated that in 70 per cent of the cases in which long-term anticoagulant therapy was stopped, a complicating embolism occurred, one fatal and another seriously crippling. Four emboli occurred within the first two weeks after treatment was discontinued. Presumably a comparable risk exists in recurring thrombophlebitis and in recurring cerebral thrombosis when dicumarol is stopped.

Certainly every patient must be meticulously evaluated in an attempt to identify those who are likely to have thrombosis if the drug is stopped. It is difficult to identify this small number, but in those in whom recurrent thrombosis has developed when dicumarol has been discontinued or when

the prothrombin has unpredictably risen, the thrombotic potential is high (Cases 2 and 3, Table 1).

If such patients require dental extraction, the risk of bleeding, the authors believe, is much less than the risk of thrombosis. Olwin and Friedman³ pointed out that a little bleeding may be of slight consequence but that a little clotting may mean the difference between a living and a dead patient. It is doubtful that bleeding from a dental socket can be as serious as an episode of thromboembolism. In case of hemorrhage, available K₁ preparations can produce a rapid rise in prothrombin activity.⁴

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REFERENCES

1. Cosgriff, S. W.: Chronic anticoagulant therapy in recurrent embolism of cardiac origin, *Ann. Int. Med.*, 38:278, 1953.
2. Facquet, J., Husson, A., and Ducrot, H.: Retrecissement mitraux emboligenes et medication anticoagulante continue, *Presse Med.*, 60:116, 1952.
3. Olwin, J. H., and Friedman, I. A.: The control of tromexan therapy, *Surg., Gynec. & Obst.*, 99:22, 1954.
4. Stragnell, R., and Ware, A. G.: Mephyton (emulsified vitamin K₁) in the treatment of excessive therapeutic hypoprothrombinemia, *M. Clin. North America*, 38:413, 1954.
5. Tulloch, J., and Wright, I. S.: Long-term anticoagulant therapy: Further experiences, *Circulation*, 9:823, 1954.

Cancer of the Larynx

The Advantages of More Conservative Treatment

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PESSIMISM as to the curability of carcinoma of the larynx is ungrounded. The earlier accurate diagnosis is made and appropriate treatment instituted, the better will be the ultimate result.

A better classification of pathologic conditions of the larynx is needed, with more general agreement not only as to the location of the lesion but also as to the effect that it has on adjacent vital structures. Before conclusions can be reached as to the best methods of proper treatment in each case, the histologic features and the clinical and biological behavior of any tumor must be studied extensively. The evaluation of any lesion in the larynx may thus require the combined work of laryngologist, clinician, pathologist and radiologist.

In almost all utterances in recent years on the general problems of cancer control the important position of the family physician has been stressed. The symptomatology, the course and the deceptiveness of early cancer all require vigilance, good training and keen judgment on the part of the general practitioner.

It is advisable that every family physician should become familiar with the techniques of using the laryngeal mirror. No examination should be considered complete unless the mouth, pharynx and larynx are scrutinized. Only with such routine and thorough examination of each patient can the control of cancer be successful. When a lesion is discovered the combined cooperation of physicians in the various fields are necessary to determine the special treatment and care each individual may require.

Once the diagnosis is made there may be honest and supportable differences of opinion as to what form of treatment to use. Some may prefer surgical operation,^{6, 10} some roentgen irradiation,^{3, 4, 5, 8} and others a combination of both.^{8, 9} Advances in both surgical treatment and irradiation have been rapid in the last few years and, depending upon the background and training of the physician as well as the conditions in the case at hand, either one or both methods of treatment have been recommended by various competent physicians. In any case the responsibility as to what treatment is to be

• Properly administered irradiation therapy for cancer of the larynx in properly selected cases can be successful. Reported herein is the case of a woman 49 years of age with a Grade 3 squamous cell carcinoma of the larynx, who at first was scheduled for radical operation but was treated by irradiation therapy with an estimated total dose of 5292 r given in 29 treatments. The tumor and all subjective and objective symptoms disappeared. The patient was still well when last observed a year later.

instituted is always to be accepted with serious concern. Of particular importance is the evaluation of the clinical behavior of a lesion.⁷ A critical interpretation of a pathological diagnosis which does not accord with the clinical features is absolutely necessary. Final choice as to the method of treatment may necessitate reconsultation with all the various specialists concerned.

In general there are two major anatomical groups of cancer of the larynx—"intrinsic type," in which the tumor is in the larynx proper, and "extrinsic type," in which it is in the laryngopharynx.⁸

Intrinsic cancer includes tumors of the vocal cords, anterior commissure, subepiglottic region and ventricle up to the free margins of the false cords. Some observers consider intrinsic cancer "operable" by cordectomy or laryngectomy, as opposed to the "inoperability" of extrinsic cancers. However, roentgen irradiation has been shown to be effective and in some series equal in effectiveness to operation.⁸

Extrinsic cancer includes tumors from the tip of the epiglottis to the cricoid cartilage, including the epiglottis or false cord, the aryepiglottic fold, the arytenoid area, the pyriform sinus and the post-cricoid region. Roentgen therapy is effective in many cases.

Extensive lesions of both intrinsic and extrinsic cancer are considered to be extrinsic. Roentgen therapy may be effective or palliative, depending upon the extent of the infiltrative process.

Failures occur regardless of method of treatment and with all accepted methods of therapy there is formidable morbidity.⁷

The author's preference is for conservative treatment with roentgen irradiation for intrinsic cancers

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and a combination of radiotherapy and operation for extrinsic cancers as indicated.

The normal power of speech is to be given up with great reluctance and resistance even though ability to speak with the esophageal voice can be developed. The main virtue of radiotherapy lies in the possibility of control of cancer without mutilation. Postirradiation operation is sometimes necessary. These operations have been done without unusual difficulty or complications, despite opinions to the contrary.⁸ Postoperative healing and convalescence are uneventful.

It must be admitted that roentgen therapy is a delicate procedure requiring considerable experience, careful observation and accuracy, with daily examination a necessity. Complete cure lies between the narrow limits of enough to excessive irradiation, and it is not sufficient to prescribe dosage in any given case with a fixed formula.

PRESENTATION OF A CASE

Following is a report of a case of squamous cell carcinoma of the larynx in which radical operation was scheduled at first. However, after numerous consultations of specialists in the various fields of medicine involved, it was decided to treat the patient conservatively with irradiation therapy supplemented with large doses of Vitamin C. The lesion disappeared completely, the patient's physical and mental well-being was reestablished and she was still well when last observed a year later.

The patient, a 49-year-old white woman, had a chronic pulmonary process in the right side of the chest. Her father, then 84 years of age, had cancer of the prostate. One sister died at the age of 42 from cancer of the stomach. Another sister died of cancer of the intestines and a third sister of tuberculosis.

In the present case the first symptoms were soreness of the throat, difficulty in swallowing and occasional hoarseness. Physicians who examined the patient observed a lesion in the throat at the left side of the pharynx, extending posteriorly and into the left arytenoid area, where there was almost complete fixation of the cartilage. A biopsy specimen was taken and a pathological diagnosis of squamous cell carcinoma Grade 3 was made.

The patient was advised to have immediate radical operation with reconstruction of the pharynx. She wished to have further medical advice, however, and after extensive consultations it was decided to give irradiation therapy. The presence of an ulcer at the site of removal of the specimen for biopsy was not a contraindication.

The patient received 29 treatments with x-ray. A total of 2,700 r was given in air through each of two 5x8 cm. lateral ports, one directed to the right and one to the left of the larynx. There was also 2,650 r given in air through a 5x8 cm. port directed anter-

iorly to the larynx. The radiation employed was generated at 200 kvp. peak and filtered by Thoraeus filter. The half-value layer was 1.9 mm. of copper. The focal skin distance was 50 cm. and the force was 20 milliamperes. The estimated dose of radiation on the tumor was 5,292 r.

At the end of the course of therapy there was moderately severe erythema over the three areas. Later the redness subsided, leaving only a faint tanning of the skin.

While under radiation therapy the patient was observed daily. To make the observations more accurate a modified hemoglobin colorimetric scale was used for the purpose of detecting any minor change in the larynx.¹²

A year after therapy the patient was leading a useful and active life and her voice was unimpaired. No prediction can be made, of course, as to the final result.

Edema severe enough to necessitate tracheotomy sometimes occurs after irradiation of the larynx, but there is no constant relation between this reaction and the eventual result of therapy.⁸

Complete and successful cure of cancer of the larynx depends upon its early diagnosis and treatment. Good oral hygiene is a factor in lessening the incidence and complications of cancer.

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REFERENCES

1. Altmann, F., Ginsberg, I., and Stout, A.: Intraepithelial carcinoma (cancer in situ of the larynx), *A.M.A. Arch. Otolaryng.*, 56:121, Aug. 1952.
2. Clerf, L. H.: Carcinoma of the larynx. *Tr. Am. Laryng., Rhin. & Otol. Soc.*, 1948.
3. Coutard, H.: Roentgen therapy of epitheliomas of the tonsillar region, hypopharynx and larynx from 1920 to 1926. *Am. J. Roentgenol.*, 28:313, 1932.
4. Cutler, M.: Concentration radiotherapy of cancer of the larynx, *J.A.M.A.*, 124:967, April 1, 1944.
5. Del Regatio, J. A.: Present-day status of radiotherapy of cancer of the larynx, *Tr. Am. Ac. Ophthal. and Otolaryng.*, 58:35, Jan.-Feb. 1954.
6. Figi, F. A.: Symposium on surgical aspects of the cancer problem; treatment of carcinoma of the larynx, *S. Clin. N. Am.*, 31:1157, Aug. 1951.
7. Furstenberg, A.C.: Symposium: Carcinoma of the larynx, diagnosis, *Tr. Am. Ac. Oph. & Otolaryng.*, 58:7, Jan.-Feb. 1954.
8. Harris, W., Silverstone, S. M., and Kramer, R.: Roentgen therapy for cancer of the larynx and laryngopharynx. *Am. J. Roentgenol., Rad. Therapy & Nuc. Med.*, 71:813, May 1954.
9. Martin, H.: Cancer of the head and neck, *J.A.M.A.*, 137:1366, Aug. 4, 1938.
10. Missal, S. G.: Adequate surgery for extensive carcinoma of the pharynx, larynx, and cervical esophagus, *A.M.A. Arch. Otolaryng.*, 61:181, Feb. 1955.
11. Pressman, J.: Cancer of the larynx, *A.M.A. Arch. Otolaryng.*, 59:395, April 1954.
12. Rubenstein, C. L.: The significance of the larynx as an index in the treatment of pulmonary tuberculosis, *Ann. Oto., Rhin. & Laryng.*, 43:1114, Dec. 1954.

Treatment of Alcoholism

Problems Arising from the Substitution of Other Drugs in Therapy

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WHEN A PHYSICIAN sees an alcoholic it is usually at the request of some member of a frantic family who reports that the patient "is very sick, can't hold anything on his stomach and has bad dreams," and usually the physician is asked to "prescribe something" so that the patient (and the family) can get some rest. The caller feels sure that a good night's sleep will solve the problem. The physician is often reluctant to visit the patient; but pressure from the family and his own conscience necessitate a visit or at least a prescription. The first choice is a sedative drug. Over the phone or in the patient's presence the physician orders a barbiturate, paraldehyde or occasionally another drug calculated to help the patient over the jitters, perhaps relieve or prevent delirium, and help him get along without alcohol.

The next day the relatives again call the physician. The patient has slept a little during the night but is complaining bitterly about an upset stomach and great tremulousness. He is irritable and irascible. He may be threatening to have another drink, or going out to get a new bottle. Can the physician prescribe more of those pills? The patient has just taken the last two and still seems to be unable to settle down. The physician calls the pharmacist and orders a refill of the prescription, for twice the amount.

The next contact with the patient or his relatives is in a few days. The patient has not been drinking or is drinking only a little and is feeling much better, but he still is not quite himself and has trouble sleeping; and tomorrow he has to go back to work.

Somewhat later the patient himself calls and tells how well he is doing. He still cannot sleep, however, and needs a refill of those capsules. After three or four calls within a few weeks the physician may begin to feel that he is being bothered unnecessarily and he may increase the number to 50, 100 or even 150 capsules. (*That* ought to hold the patient for awhile). Or the physician, judging that the patient has had enough drugs, tells him the dangers of drugs and warns him to stop. In the latter case, the patient calls a physician he has seen a few months

• Of the 139 patients admitted to hospital for chronic alcoholism, 32 had been taking other drugs also, and 17 were addicted to the drugs. Of the 32 patients, 16 used barbiturates, and 8 were addicted. Five took large amounts in suicidal attempt.

Ten patients combined still other drugs with alcohol and barbiturates; and seven of them were addicted to barbiturates. Of the six patients combining alcohol with drugs other than barbiturates, two were addicted to the use.

Of the 16 patients who used drugs other than barbiturates, eight used one or more opiates such as meperidine, morphine, codeine or dihydromorphinone. Four used stimulants such as benzedrine or dexedrine, alone or in combination. Still other drugs were used in some combination by 32 patients.

or years earlier, describes his difficulty in sleeping and says that another doctor prescribed some capsules a while back which really helped. However, that doctor is out of town right now and "Will you please refill the prescription?" This, then, is the beginning of a vicious cycle.

A few months or years later the patient may be seen by a psychiatrist, again as the result of family urging. Members of the family say that lately he has not been drinking but for some reason he acts drunk at times. His speech is slurred and his gait staggering. His boss has complained that the employee shows poor judgment and perhaps should have a vacation or be laid off his job.

In the interview, the psychiatrist observes the conditions reported by the family: The patient staggers into the office but there is no odor of alcohol. He is dysarthric, his memory poor, judgment impaired and cognitive functions slowed.

The patient relates a typical history: He is 39 years old. He had been a social drinker until 12 years ago when he began having marital difficulties, and his drinking then increased considerably. A year or so later, while on a business trip, he woke one morning feeling extremely tremulous and with mild discomfort in the precordium. A physician who was called prescribed "therapeutic doses of barbiturates." During the intervening years, he had consulted many physicians, most of whom cooperated in meeting his requests for sedatives.

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About a year ago, when his regular physician went on a vacation, the patient was referred to another doctor. The second physician apparently got tired of the patient and managed the situation by allowing him unlimited quantities of sedation. During the preceding few months, the patient had been taking 16 to 24 capsules (0.1 gm. each) of pentobarbital a day. In the ten years since he began taking barbiturates, he has continued to be a daily drinker, consuming up to a fifth of whiskey a day. At times he has had spells of unconsciousness, with jerking.

The problem at this point becomes one for hospital management in a psychiatric ward.³

In order to clarify a clinical observation that the use of certain drugs in the treatment of alcoholism is potentially dangerous, the author reviewed the records of admissions to the psychiatric department of a general hospital. Of the 139 patients admitted in 1954 with a primary diagnosis of chronic alcoholism, 32 (23 per cent) were taking regularly some drug or combination of drugs in conjunction with alcohol or had substituted drugs for alcohol. Of these, 17 were or had been addicted to one or more of these drugs.

Of the 32 patients, 16 were drinking and taking barbiturates or had substituted barbiturates for alcohol. Eight of the 16 were addicted to barbiturates. Ten additional patients were drinking and also taking barbiturates and some other drugs or had substituted one or more of these drugs for alcohol. Six of the ten were addicted to barbiturates and one to a combination of barbiturate and stimulant (Dexamyl®). Six other patients either combined alcohol with drugs other than barbiturates or had substituted them for alcohol. One of the six was taking 20 to 30 amphetamine tablets (10 mg. each) daily, and another had been successively addicted to paraldehyde, morphine and meperidine (Demerol). (See Table 1.) Although a total of 26 patients (15 of them addicts) used barbiturates, many of the 32 also took opiates such as meperidine, morphine, codeine and dihydromorphinone (Dilaudid). Other drugs used were racemic amphetamine (Benzedrine), dextro-amphetamine (Dexedrine), bromides, paraldehyde and chloral hydrate. Two patients were taking unknown drugs bought over the counter in a drugstore (See Table 2).

Addiction is defined as follows by the Expert Committee on Drugs Liable to Produce Addiction of the World Health Organization: "Drug addiction is a state of periodic or chronic intoxication, detrimental to the individual and to society, produced by the repeated consumption of a drug (natural or synthetic). Its characteristics include: (1) an overpowering desire or need (compulsion) to continue taking the drug and to obtain it by any means, (2)

TABLE 1.—Data on combined use of alcohol and drugs by alcoholic patients

Total number patients admitted for alcoholism, 139	Addicted to Drug
Patients combining alcohol and barbiturates.....	16
Patients combining alcohol, barbiturates and other drugs.....	10
Patients combining alcohol and drugs other than barbiturates.....	6
Total patients combining alcohol and drugs.....	32
	17

TABLE 2.—Use of drugs other than barbiturates in group of 139 alcoholic patients

OPIATES—	Number of patients using
Meperidine (Demerol)	3
Morphine	2
Codeine	2
Dihydromorphinone (Dilaudid)	1
STIMULANTS—	
Racemic amphetamine (Benzedrine)....	3
Dextro-amphetamine (Dexedrine)	1
OTHER DRUGS—	
Bromides	4
Paraldehyde	2
Chloral hydrate	1
Unknown	2

a tendency to increase the dose and (3) a psychic and sometimes a physical dependence on the effect of the drug."¹

Within the scope of this definition, alcoholism is an addiction comparable to that which may result from the use of narcotic drugs. The patient almost always has an overpowering desire for alcoholic beverages, universally increases the frequency and amount of his drinking, and without reservation is psychically dependent on alcohol to maintain a sense of well-being. As with other types of addiction, milder forms often eventuate in increased dosages or in more rapid and effectual methods of administration or in combinations of drugs for greater effect. An alcoholic, therefore, is a potential addict to any other medication which fulfills his requirements. Barbiturates produce intoxication similar to that of alcohol and have the specific advantage of having no alcoholic odor. They are certainly more easily secreted upon the person than is a bottle of whiskey and can be taken surreptitiously with greater ease. Unfortunately, these drugs are too easily available from both legitimate and illegal sources.

The tendency of alcoholics to take other drugs is too little recognized and a physician may be too ready to prescribe addicting medications without adequate investigation. (One of the 139 patients in the present series had had as his latest prescription, before he was admitted to hospital, one for 150 pentobarbital capsules (0.1 gm. each). Furthermore, the prescription of barbiturates to an alco-

holic for the treatment of nervous tension or physical illnesses is potentially dangerous. One of the patients under treatment for hypertension had two automobile accidents while under the influence of phenobarbital but not of alcohol.

It is well known that alcoholics, like other addicts, are given to pathological lying and deceit. An unwary physician may well become the pawn of an alcoholic who has turned drug addict, as in a case in the present series, that of X, a man 51 years of age. He had constantly used alcohol to excess until 1949 when disulfiram was prescribed as an adjunct to treatment. A year later he discontinued the drug and started drinking again. In 1951 he was admitted to a state hospital with acute depression and had electroshock therapy. Within a year, he noted a gradual recurrence of depression and consulted a physician in his home town, who prescribed a combination of amobarbital and dextro-amphetamine (Dexamyl). From that time until hospital admission, there was progressive deterioration of judgment and the patient finally lost his job. He had increased the consumption of the drug to 150 to 200 tablets a week. In addition, he continued to drink heavily. It was learned that four different physicians were supplying him with drugs, each unaware that the others were doing so. In addition, he was on exceedingly good terms with several local pharmacists who thought well enough of him to refill his prescription. To further complicate the problem, many patients have a psychotic reaction at the time of withdrawal of drugs. One of the patients in the present series was transferred from another hospital. He had been hospitalized for a physical illness and drugs had been abruptly withdrawn because the attending physician was unaware of the patient's addiction. Within four days his behavior had become so bizarre that a diagnosis of acute schizophrenic reaction was made. After transfer, an interview with a relative revealed that the patient had been taking large amounts of barbiturates. He was immediately started on pentobarbital, 0.2 gm. every six hours, and within 12 hours the psychosis had cleared. There was no recurrence of symptoms during gradual withdrawal of the drug over a two-week period.

Although no attempt has been made to determine the number of patients who had grand mal seizures, this is one of the most common and potentially serious of the complications of abrupt barbiturate withdrawal. One patient in the series was a heavy drinker who also took barbiturates. During a business trip across the country he had run out of drugs. Just before reaching his destination he had a severe convulsion and fractured his jaw. In a hospital, barbiturates and anticonvulsants were administered, but within a few hours another seiz-

ure occurred, laryngeal edema developed and the patient died.

Occasionally alcoholics become seriously depressed, and of course a handy supply of barbiturates facilitates action upon an impulse to suicide. During the past year the author has treated five alcoholic patients who took large amounts of barbiturates in suicidal attempts.

Like addicts to opiate drugs, an alcoholic will, when kept from his normal daily requirements, substitute almost any other available medication. One patient, a 40-year-old woman had been previously treated for alcoholism with disulfiram as an adjunct. A few months after discharge from the hospital her relatives called, stating that she did not seem to be herself. Since leaving the hospital, she had worked in a physician's office and was able to procure barbiturates from the office supply as well as drug samples. When these did not seem to be sufficient, she took a patent medicine containing bromides. Upon readmission to the hospital, the patient was extremely drowsy; her speech was slurred and her gait staggering. Her memory, attention and judgment were poor and she was disoriented as to time, place and person. The content of bromide in the blood was 212 mg. per 100 cc.

Some patients who have first started on drugs after drinking excessively later turn to narcotics.

Less frequent than the foregoing problems are those associated with taking of stimulants. Benzadrine and Dexedrine are known for their effects on the central nervous system. They give a feeling of euphoria and an increased feeling of alertness, and prevent feelings of fatigue and sleepiness. These effects induce alcoholics to take these drugs in order to counteract the reaction to drinking.

During the past four years not a single case of paraldehyde addiction has been observed in the department of the hospital in which the author serves, although one patient in the group had previously been addicted, and another was seen in an emergency situation as a result of an overdose of paraldehyde.

It is to be noted that the alcoholic often compounds his own problems. Three of the 32 alcoholic patients who also took drugs were admitted as a result of bromide delirium. One of these patients, a man 49 years of age, had been drinking three or four quarts of beer a day for many years. He had been in the habit of taking a patent medicine containing bromides for more than 20 years. During recent months nervous tension had increased and he had taken the medicine by the "swig" instead of as directed on the bottle. It was reported that during the month before hospitalization he appeared "slowed down, was inattentive, dull, groggy, forgetful, and frequently mumbled to himself." He

was also dysarthric, ataxic, and had loss of memory for recent events. Bromide content of the blood was 244 mg. per 100 cc.

Patients who take bromides, although not within the scope of the previously cited definition of addiction, are classified as addicts by Maurer and Vogel.⁴ Inclusion of two patients with bromide delirium would bring the total number of addicts in this series to 19.

DISCUSSION

Ironically, abstinence from drinking may be a curse in disguise. An alcoholic who is "dry" is always a potential candidate for addiction to other drugs. Sometimes it is extremely difficult to determine whether or not a patient is taking medications which have not been prescribed. The author has come to recognize that even small differences in muscular coordination, speech or cognitive functions may indicate that the patient is surreptitiously taking drugs. If these symptoms are evident, it is wise to question the patient carefully and perhaps consult his family. If this is not possible, the patient should be hospitalized for observation and laboratory studies to determine the cause of the symptoms.

The material in this paper might lead to the conclusion that an alcoholic should never be given sedatives for any purpose. As a general rule this may be correct. However, there are several specific exceptions.

1. Patients suffering from acute alcoholic intoxication and hangover should be given sedation for the relief of insomnia, tremulousness and gastric distress. If it is not possible to hospitalize the patient, the drugs should be carefully controlled by

specific instructions to relatives. Since many alcoholics use insomnia as an excuse for drinking or taking drugs, sedatives should be withdrawn within a few days. Hospitalized patients should never be discharged until they have reestablished a normal sleep pattern without medication.

2. Nothing is more frightening to a delirious alcoholic than a sleepless night with interminable hallucinations. Such a patient also requires sedation and should continue to have it until he is free from nocturnal visitations and able to sleep for at least a few hours. Some delirious patients also require sedation during the day. Again, it is not wise to discharge the patient from the hospital until he is able to sleep well.

3. In the event an alcoholic has convulsions during the period of active drinking or hangover, he should be treated as though addicted to barbiturates. Isbell³ worked out a very satisfactory method for the withdrawal of barbiturates from addicts, and Hargrove and co-workers² reported upon experience with it.

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REFERENCES

1. Expert Committee on Drugs Liable to Produce Addiction: Second report: World Health Organization Technical Report Series, No. 21. Geneva, Switzerland, World Health Organization, 1950.
2. Hargrove, E. A., Bennett, A. E., and Ford, F. R.: Acute and chronic barbiturate intoxication—recent advances in therapeutic management, *Cal. Med.* 77:383-386, Dec. 1952.
3. Isbell, H.: Addiction to barbiturates and the barbiturates abstinence syndrome. *Ann. Int. Med.*, 33:108-121, July 1950.
4. Maurer, D. W., and Vogel, V. H.: Narcotics and narcotic addiction. Charles C. Thomas, Springfield, Ill., 1954, p. 89.



Tumors of the Urachus

Report of Five Cases

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TUMORS OF THE URACHUS are relatively rarely reported in the literature. It is the purpose of this paper to present three additional patients with malignant and one with benign urachal tumor, and an 11-year follow-up of another patient, one of three previously reported,¹⁴ who had adenocarcinoma of a urachal cyst with vesical invasion.

In February, 1953, Slater and Torassa¹⁹ found reports of 70 cases of carcinoma of the urachus in the literature and added one of their own. Since then, Begg,² Pollock,¹³ Bobrow³ and Faulkner and co-workers⁵ have increased the number to 75. The authors' three additional cases bring this total to 78, of which six have been under their personal observation.

The allantois extends from the cloaca to the placenta, leaving the embryo through the umbilical cord. The abdominal portion is called the urachus (Figure 1). Later it is intimately associated with the peritoneum. In normal development, the bladder and urachus separate from the cloaca, and the urachus then becomes obliterated. However, at any point in the urachus, epithelial-lined spaces may persist and later become cystic or malignant. If bladder neck obstruction exists the urachus may remain patent. The tumors may be transitional or revert to the cuboidal-columnar anlage and bring about mucinous adenocarcinoma.

REPORTS OF CASES

CASE 1. A white man 25 years of age was admitted to Scripps Hospital July 14, 1953, and was discharged July 31, 1953. He complained of a slow urinary stream all of his life. In 1946, dilatation of a urethral stricture and cystolithotomy were done in a government hospital. In 1952, in another government hospital, dilatation of the stricture was again carried out. Cytoscopy revealed no other cause for hematuria, which began in November, 1952. When seen by the authors in June, 1953, the patient complained of a slow stream, intermittent hematuria, recurrent dysuria and epididymitis. Upon physical examination, the only abnormalities noted were a transverse suprapubic scar, thickening of the left epididymis and inflammatory induration of the prostate.

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- Reports of three patients with malignant and one with benign urachal tumor are presented.

Survival of one patient in good health 11 years after removal of adenocarcinoma of a urachal cyst with vesical invasion is reported.

Methods of diagnosis and treatment are discussed.

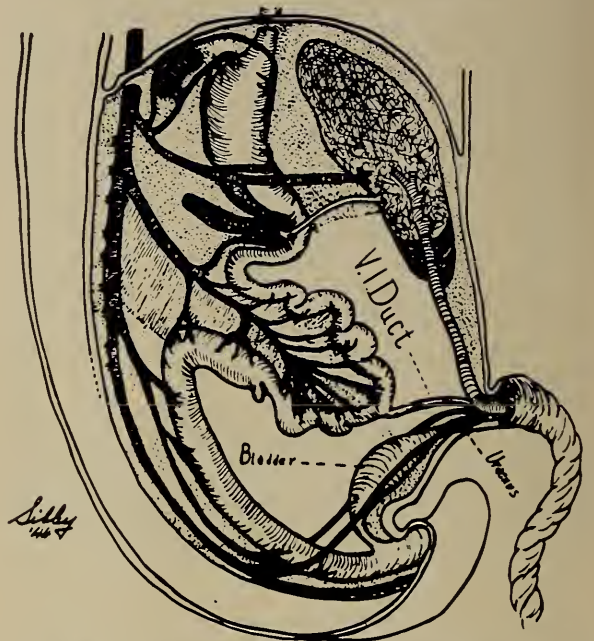


Figure 1.—Diagram showing the urachus extending from bladder to umbilicus. Bladder still connected to cloaca. (From Sibley, W. L., Cyst of Urachus, Arch. Surg., 79:465-468, 1950.)

The prostatic secretion and the urine contained many leukocytes. The urine contained many Gram negative bacilli.

Excretory urograms were normal. Cystourethroscopic examination showed a bulbous stricture to the size of a No. 14 (French) catheter, Grade I intra-urethral lateral lobe prostatic hypertrophy, and a posterior commissure of Grade IV enlargement. On the posterosuperior wall of the bladder was a flat tumor, 2.5 x 3 cm. in dimension, having a papillary texture and appearing to be Grade II or more in degree of malignancy.

On July 15, 1953, internal urethrotomy, trans-urethral prostatectomy, and biopsy of the tumor were performed. Upon examination of a frozen section of the tumor adenocarcinoma was diagnosed

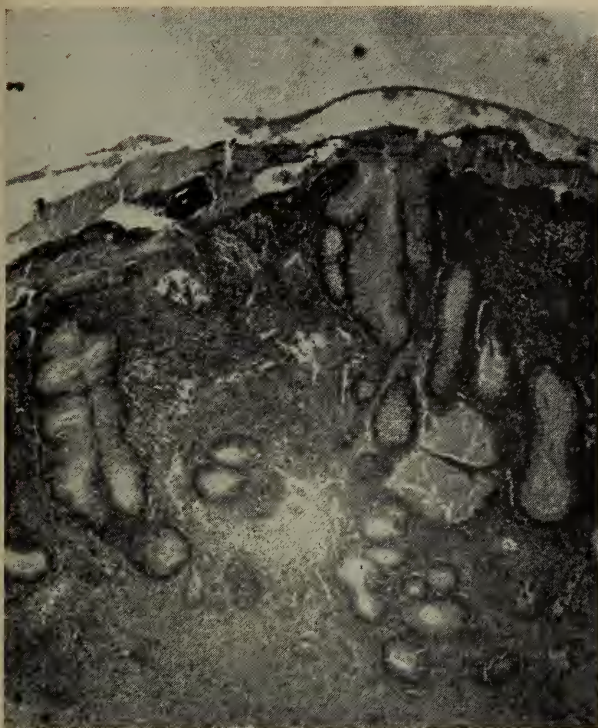


Figure 2.—Tissue section of tumor removed in Case 1 ($\times 50$). Note mucus glands.

and suprapubic removal of the tumor-bearing bladder wall, the overlying peritoneum and inferior portion of the urachus was carried out immediately. There was invasion of the peritoneal surface, but no distant metastatic lesions were present. Since the tumor was entirely inferior, the peritoneum in the midline and the navel were not removed. The wound was closed in the usual manner and the bladder was drained with a urethral catheter.

The pathological report was: "(1) Colloid adenocarcinoma, Grade I, arising in adenoma of urachus. (2) Benign prostatic hypertrophy" (Figure 2).

Postoperatively the patient did well, and was discharged on the 16th day. Dilatation of the stricture was carried out regularly thereafter. Occasional relapsing infection responded well to treatment. Cystoscopic and general examination in February, 1955, showed no recurrence.

CASE 2. A white male patient, 51 years of age, was admitted to Mercy Hospital July 5, 1951, with complaint of intermittent hematuria of four months' duration. There were no other symptoms.

No abnormalities were noted upon physical examination. The urine contained 10 to 12 erythrocytes per high dry field.

Cystoscopic examination and retrograde pyelography showed the presence of a 1.5 cm. broad flat tumor in the vertex of the bladder. The report on a biopsy specimen was "mucinous adenocarcinoma."

On July 6 the umbilicus, a full thickness of abdominal wall with attached peritoneum and a cuff of bladder including the tumor were removed en bloc. There was no tumor except at the urachal



Figure 3.—Tissue section of tumor removed in Case 2 ($\times 50$). Note mucus glands.

attachment to the bladder where wrinkling of the peritoneum suggested invasion. The bladder was closed easily, but approximation of the peritoneum and fascia was difficult.

The pathologic diagnosis: "Adenocarcinoma of bladder, Grade II (Urachus)" (Figure 3).

The patient did well and was discharged July 18. Cystoscopic examination was done on October 11, 1951, and no abnormality was noted. On January 8, 1952, local recurrence in the wound was evident. That lesion was excised, but there were numerous tumors in the peritoneal cavity. The patient died September 22, 1952. At autopsy no other primary tumor was observed.

CASE 3. A negro woman, 56 years of age, was admitted to Mercy Hospital August 22, 1951, with complaint of soreness about the navel, low back-ache and diarrhea of four weeks' duration. In the navel was a hard, button-like growth 2 cm. in diameter. There was no ulceration. In the left lower quadrant of the abdomen there was a palpable mass extending to the midline in the region of the bladder. Upon bimanual examination it was noted that the mass extended beyond the midline, and rectal examination suggested high annular constriction.

Results of examination of the urine were within normal limits. Excretory urograms were normal.

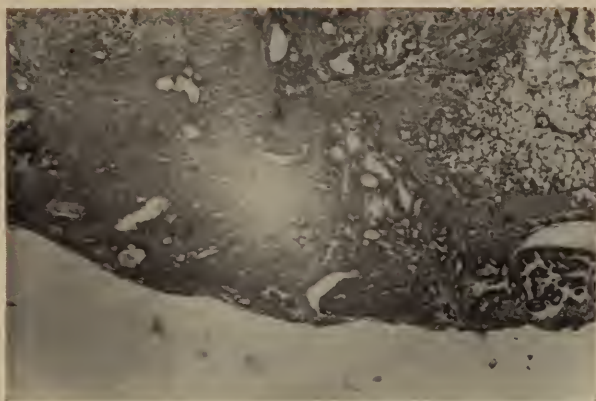


Figure 4.—Tissue section of umbilical tumor removed in Case 3 ($\times 50$). Note mucus glands.

Cystoscopic examination showed an extravascular mass to the left, and intact vesical mucosa.

No abnormality was observed at biopsy of a rectal specimen from the level of involvement.

At operation the navel and the tumor in it were removed. Upon peritoneal exploration, metastatic lesions were observed on bowel surfaces, omentum, liver and both ovaries. The ovaries were removed.

The pathologic report: "Primary colloid adenocarcinoma of umbilicus (urachus) with metastasis to omentum and bilateral metastasis to ovaries."

The patient died December 10, 1951. Permission for postmortem examination was refused.

CASE 4. A white man, aged 45 years, was admitted to Scripps Hospital May 5, 1953, with complaint of a foul, purulent discharge from the navel, first noted in 1933, but recurring April 12, 1953. There was moderate pain about the navel and a pulling sensation in the navel on urination. These conditions had been noticed at the time of the episode in 1933 also. Hair was noted in the material discharged from the navel. In 1927 a dermoid cyst had been removed from the area of the right twelfth rib.

Upon physical examination, inflammation was observed about and below the navel. The urine and prostatic fluid were normal. Mixed bacteria, but no tubercle bacilli, were seen upon examination of material discharged from the navel.

Excretory urograms and retrograde air and opaque cystograms were normal. A flexible hollow probe was introduced through the navel for a distance of 4 cm. Upon injection of 2 cc. of iodochloral, a cavity 2.5 cm. in diameter below and to the right of the navel was visualized (Figure 5).

Cystourethroscopic examination revealed only mild posterior urethritis. No abnormalities were seen in barium contrast roentgenographic studies of the entire gastrointestinal tract.

At operation the navel was circumcised and the incision was carried to the symphysis. The rectus fascia was opened and the peritoneum was opened above the navel. Adhesions were freed and the navel, the tumor, attached peritoneum and rectus



Figure 5.—Left oblique radiograph of abdomen in Case 4 after injection of iodochloral through navel sinus. Note deep cyst outline. The "O" marks navel.

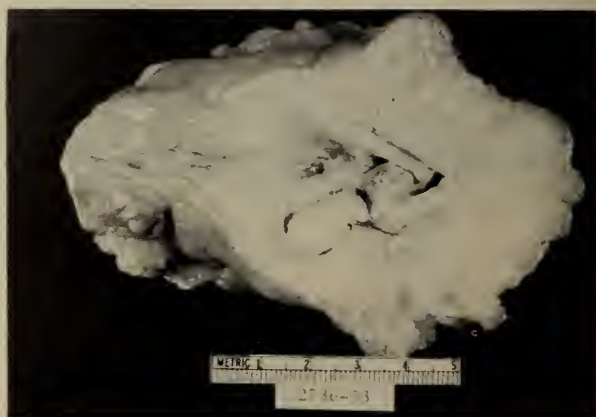


Figure 6.—Gross specimen of tumor-cyst removed in Case 4. Note cyst surrounded by mass of fibro-fatty tissue.

muscle were excised along with the urachus and the dome of the urinary bladder. Grossly the tumor appeared malignant (Figure 6). Repair of the bladder was routine, but the peritoneum and abdominal wall were closed with difficulty.

The pathologic diagnosis was: "Chronically inflamed urachal cyst containing acutely inflamed ulcerated polyps and hair mixed with debris." (See Figure 7.)

The patient was alive and well in February, 1955.

CASE 5. In this case (previously reported¹⁴) a white woman 38 years of age had radical excision of a urachal cyst containing colloid carcinoma and invading the bladder (Figure 8). Radon seeds were placed in the bladder wall and the rectus muscle. The patient was alive and well when examined cystoscopically some ten years after operation. In January, 1955, she reported herself to be well.

DISCUSSION

The symptoms of urachal tumors and cysts may be classified as follows: (1) Local—tumor and infection about or below the navel (Case 4); (2) Peritoneal irritation, when infected; (3) Gastro-

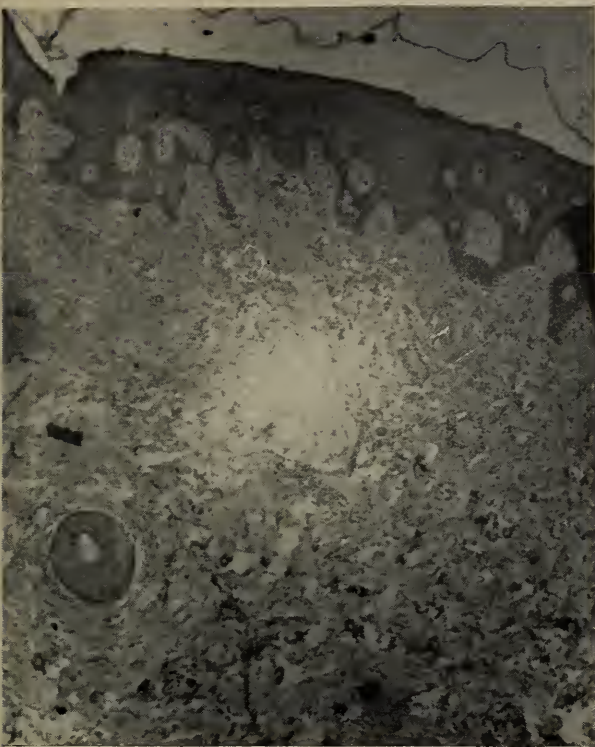


Figure 7.—Microphotograph of section of wall of cyst removed in Case 4 ($\times 50$). Note epidermoid lining and hair follicles.

intestinal in the presence of adherence of bowel, or in metastases to bowel or liver (Case 3); (4) Vesical, including dysuria, hematuria or pain referred to navel on urination (Cases 1, 2 and 4); (5) Genital, as in women with palpable midline tumor of mistaken pelvic origin (Case 5). Specific symptoms demanding consideration of urachal disease are suprapubic tumor, discharge of material from the navel, and pain in the navel on urination.

Essential examinations in cases in which urachal abnormality is suspected include: Physical examination, including bimanual; upper gastrointestinal and colon barium contrast x-ray study; sigmoidoscopic, cystoscopic and pyelographic examination; radiopaque visualization of draining umbilical sinuses (Figure 5); and transurethral biopsy of tumors in vesical vertex. Not all of these procedures were carried out in the group of patients herein reported upon. Routine application, however, would eliminate diagnostic error and uncover possible complicating factors.

Physical signs suggestive of urachal disease are inflammation of and drainage from the navel (Case 4). Tumor may be present in the umbilicus or at any point down to the symphysis (Cases 3 and 5). The tumors are usually midline. Upon bimanual palpation, preferably under anesthesia, the physician may discover unsuspected masses. Signs of peritoneal inflammation may occur with infected cysts



Figure 8.—Microphotograph of tissue section of tumor removed in Case 5 ($\times 150$). Note columnar mucous cells.

because of their intimate relationship to the peritoneum; some cysts or tumors may be almost intraperitoneal.¹⁵

Cystoscopy may reveal normal findings (Cases 3 and 4), even in the presence of hematuria, as the tumor may arise above but drain into the bladder through a patent duct.² An extravescical mass, with or without bullous mucosal edema, may be seen. Usually a flat infiltrating tumor is seen in the vertex (Cases 1, 2 and 5). It is most often glistening and medullary but may be papillary (Figure 8) (Cases 1, 2 and 5). Most such tumors are about 2 to 4 cm. in diameter, but some are very extensive. At times the extravescical cyst depresses the vertex of the bladder as in pregnancy.

Radiographic studies are helpful. Usually studies of the upper tract are negative, but large cysts, with or without tumors, may displace the ureters laterally by traction on the transversalis fascia. Extremely large cysts, filling the pelvis, may cause hydrourter above the brim of the true pelvis. Cystograms will reveal superior compression and possibly lateral displacement of the bladder in the presence of large tumor-cysts. Roentgen visualization of cysts by in-

jection of radiopaque material into the draining umbilical sinus will settle the diagnosis (Figure 5).

Differential diagnostic possibilities include: Inflammatory and malignant lesions of the sigmoid colon; tumors and cysts of internal female genitalia; primary tumors of the bladder; and disease of the vitelline duct when the primary findings are in the umbilicus (Figure 1). Following the suggested seven diagnostic steps should eliminate error even if the biopsy is reported as carcinoma of the rectosigmoid.

The treatment is always radical excision, even in the case of benign cysts, as they may become malignant (Case 4). Theoretically this should include the navel, urachus, adjacent peritoneum and a cuff of the bladder. The authors recommend this for lesions beginning in the navel, and feel it is best in all cases. However, in the group of cases herein reported, two of the survivors had only the bladder cuff and proximal urachus removed. When the umbilicus and upper urachus are removed, difficulty in closing is certain (Cases 2 and 4).

Whether the lesion is primarily umbilical or vesical, it is mandatory to open the peritoneum for inspection. Umbilical lesions may be found to be due to vitelline duct persistence (Figure 1) and have connection with the bowel. With the latter in mind it is wise to have general surgical consultation. In any case, opening the peritoneum permits exploration for metastatic lesions, division of local adhesions and wide excision of the disease.

Radiation therapy is of doubtful value. However, the patient, who is living 11 years after operation, had radon implanted in the bladder and the abdominal wall, and although this delayed healing, it may have helped survival (Case 5).

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REFERENCES

1. Bandler, C. G. and Roen, P. R.: Mucinous adenocarcinoma arising in urachal cyst and involving bladder, *J. Urol.*, 64:504-510, Sept. 1950.
2. Begg, R. C.: Hematuria from an undetected urachal tumor, *Lancet*, 2:18-19, July 1952.
3. Bobrow, M. L.: Mucoïd carcinoma of the urachus, *Am. J. of Obs. and Gyn.*, 65:909-911, April 1953.
4. Engster, H.: Urachal cysts with report of two cases, *N. Y. State J. of Med.*, 51:499-502, Feb. 1951.
5. Faulkner, J. W., Greene, L. F., McDonald, J. R.: Mucinous adenocarcinoma in a urachal cyst producing pseudomyoma peritonaei, *J. Urol.*, 72:217-221, Aug. 1954.
6. Franksson, C., and Nelson, O. A.: Suppurating urachal cyst, *Urol. and Cut. Rev.*, 55:280-282, May, 1951.
7. Friederwitzer, H. H.: Urachal cyst, *N. Y. State J. Med.*, 54:1380, May 1954.
8. Getz, R. J., and Thomas, D. E.: Cysts of patent urachus, *U. S. Armed Forces Med. J.*, 1:433-436, April 1950.
9. Hurwitz, S. P., Jacobson, E. B., Ottenstein, H. H.: Mucoïd adenocarcinoma of the urachus invading the bladder, *J. Urol.*, 65:87-92, Jan. 1951.
10. Lewis, E. L., and Kimbrough, J. C.: Infected urachal cyst, *U. S. Armed Forces Med. J.*, 3:1525-1527, Oct. 1952.
11. Loeb, J. L.: Adenocarcinoma of urachus involving bladder and abdominal wall, *J. Urol.*, 64:499-502, Sept. 1950.
12. Nunn, L. L.: Urachal cysts and their complications, *Am. J. Surg.*, 84:252-255, Aug. 1952.
13. Pollock, A. V.: A case of adenocarcinoma of the urachus showing extensive calcification, *Brit. J. Surg.*, 40:187-188, Oct. 1952.
14. Prentiss, R. J.: Urachal cysts with malignant invasion of the bladder, *Calif. Med.*, 67:103-104, Aug. 1947.
15. Rasch, G. C.: Blood-containing urachal cyst simulating acute appendicitis, *J. Ind. St. Med. Assn.*, 45:17-19, Jan. 1952.
16. Rees, H. I.: Infected urachal cysts, *Brit. Med. J.*, 2:184-186, July 25, 1953.
17. Sibley, W. L.: Cyst of the urachus, *Am. J. Surg.*, 79:465-468, March 1950.
18. Sibley, W. L.: Meckel's diverticulum, *Arch. Surg.*, 49:156-166, Sept. 1944.
19. Slater, G. S., and Torassa, G. L.: Mucinous adenocarcinoma of urachus connected to urinary bladder, *Stanford Med. Bull.*, 2:19-29, Feb. 1953.
20. Tauber, J., and Bloom, B.: Infected urachal cysts, *J. Urol.*, 66:692-696, Nov. 1951.
21. Wessell, M. S., Kuritz, A. B., Burger, R. A., and Reagan, G. W.: Mucinous carcinoma of the urachus invading the bladder, *J. Urol.*, 67:523-525, April 1952.



Meeting Community Health Needs

The Combined Role of the Physician, Health Department and Hospital

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"THE PHYSICIAN," said Ristine,⁴ "... is now one of a group of highly trained individuals in a community, among whom a division of labor has become mandatory by the immensity of the knowledge that has developed about disease and its treatment. . . . There has developed the modern concept of the medical profession looking after the needs of the community—group caring for group, rather than individual for individual. And this concept carries into fields which comprise the modern practice of medicine—research, preventive medicine, public health, medical legislation, medical education, hospital management, health economics, and the financing of medical care, to mention only a few. . . . The individual physician is no less important than formerly—but the group importance is infinitely greater. . . . The services of all are concerned with, and essential to the conservation of health."

To some physicians, this philosophy presents a threat to certain basic traditions of the medical profession. To many others, however, these modern concepts present not a threat but a challenge to the highest creative faculties of the individual physician and of the profession as a whole. Indeed, the concepts of interprofessional teamwork and of professional cooperation with the public have emerged—albeit slowly and sometimes painfully—from the experience of individual physicians and groups of physicians as they have striven to assimilate to their practice the "immensity of knowledge," as well as the formidable present-day medical technology.

The surgical team, for example, originated in the absolute necessity for a precise coordination of many minds and hands in order that the miracles of modern surgery might be performed with maximum safety. The clinical research group emerged in an effort to bring about a synthesis of various disciplines in the medical sciences and various clinical specialties. The epidemiology team was the logical outgrowth of efforts to study the natural history of diseases with diverse etiologies, different modes of transmission and varying socioeconomic settings.

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• Social and economic changes—the lengthening life span, the shift of population from rural to urban areas, the growth of industry and other factors—have brought about radical changes in the nation's health needs. Our greatest health problem today is chronic illness. To cope with these problems public health, medical care and hospital services, which are at present geared primarily for acute illness, must be revised.

Immediate and specific steps which physicians, health departments and hospitals can take to accomplish this are to define the problem and to initiate studies in several areas: To determine the incidence and prevalence of disease, injuries and impairments; the nature, degree and duration of resulting disability; and the type of care received.

The basic approach to chronic illness is prevention. To accomplish this, more emphasis needs to be placed upon health education. Good health cannot be forced upon the public, but educated and enlightened citizens can and do solve their own health problems and those of their families and communities.

Due to the complex nature of today's health problems, they must be approached jointly by physicians, local health services, hospitals and the public. The efforts of those groups must be coordinated and aimed, directly and indirectly, at preventing disease and disability.

In more recent times, the medical profession has evolved the rehabilitation team, home care teams, and other types of group functioning in order to assimilate new knowledge and skills to the care of patients.

Teamwork must be distinguished from mere division of labor. All physicians take for granted the division of labor in medical practice, for in the management of most patients they are dependent upon one or more of the following groups: Medical colleagues, pharmacists, nurses, dietitians, laboratory technicians, physical therapists, and other trained personnel. In many cases, the whole battery of medical personnel and the total organization and facilities of a hospital are required.

This is not necessarily teamwork. It is only when the principles of group thinking and group action are applied along with the specialized medical thought, skills and equipment, that we find true interprofessional teamwork. The team approach implies a mutuality of respect and responsibility

on the part of all persons involved. This is the "group importance" that Ristine had in mind when he said that it transcends the undiminished importance of the individual physician.

By and large, the interprofessional team is the product of cooperation between a few individuals representing diverse backgrounds and skills. It is natural therefore that the interprofessional team has developed to its highest level and with greatest frequency in hospitals and health departments, for the very concept of medical teamwork implies not only a variety of skills, but also mutually accessible facilities, and a point of focus. The beneficial results of interprofessional teamwork radiate to the larger group—the profession as a whole—by the process of mimesis, as a few individuals unite in other single hospitals or departments to adopt, apply and refine the original technique or scientific finding.

Sometimes, outside agencies can speed this mimetic process. For example, the Cooperative Clinical Group, which some thirty years ago began its classic studies of syphilis in cooperation with the United States Public Health Service. At its peak, the Group included leading clinicians, heads of departments of syphilology in medical centers across the country, who voluntarily pooled their data on the diagnosis and treatment of syphilis in all its stages and manifestations. The aim was to provide private practitioners—specialists and general physicians—with the best available information on the management of this, at that time, baffling and difficult-to-treat infection.

The Public Health Service acted only as a mutually accessible facility and point of focus, by tabulating and analyzing the data, by providing funds for the Group's numerous conferences, and publishing its findings. The direct result was the standardization of serologic tests and therapeutic regimens, the reports of which were widely distributed to the medical profession. Indirectly, the joint medical-public health attack on primary and secondary syphilis and prenatal syphilis stemmed from the work of the Cooperative Clinical Group.

Our latter day Cooperative Therapy Evaluation Program has stimulated similar voluntary teamwork in the field of tuberculosis control. This program originated in 1947 when the potential effectiveness of streptomycin in tuberculosis therapy was discovered, and has continued as additional chemotherapeutic agents such as PAS, isoniazid and other newer drugs have appeared. In all, clinicians in 78 hospitals have cooperated with the Public Health Service in determining the effectiveness of the new drugs and of various therapeutic regimens.

The long-range goal of these cooperative endeavors is, of course, the eventual conquest of the

diseases involved; but the primary purpose is to place in the hands of physicians new and effective methods for application in day-to-day practice. The role of official and voluntary health agencies in these programs, as in many others, has been that of fact-finder, of communications channel and, in some instances, that of mutual facility and point of focus.

Last year a cooperative study group composed of pediatricians and ophthalmologists in 18 hospitals completed a study of retrolental fibroplasia, with the financial support of the Public Health Service, the National Society for the Prevention of Blindness and the National Eye Research Foundation. The findings announced by this group of clinicians showed that up to 85 per cent of the cases of blindness due to retrolental fibroplasia in premature infants can be prevented—simply by withholding oxygen in the management of such infants, except when oxygen therapy is clinically indicated, in contrast with the routine use of oxygen in the management of prematures.

CHANGING HEALTH PATTERNS AND GROUP COOPERATION

The cooperative clinical study groups described have encompassed somewhat larger medical circles than the first-line interprofessional team in the hospital, health department or rehabilitation center. Nevertheless, these cooperative studies have somewhat the same person-to-person relationship that characterizes the surgical team or the rehabilitation team. Cooperation of groups with groups, even at the relatively intimate level of the local community is far more difficult to achieve.

Yet it is clear that the application of the principles of group planning and action for the solution of community health problems is the greatest challenge facing the health professions and the public today. All of us—physician and patient, medical society, hospital, health department, and community as a whole—are required to cope with the changing health problems that beset the American people.

The challenge is to discover how best all of us, who are "concerned with and essential to the conservation of health" may function group-to-group. A mere division of labor will not suffice, for the health problems of today will not necessarily yield to the relatively simple devices which the groups concerned worked out years ago.

The public health physicians and private practitioners of fifty years ago worked out a *modus operandi* that was remarkably effective and mutually satisfactory for coping with the major community health problems—the communicable diseases. The health department collected and disseminated vital statistics, conducted the necessary epidemiological studies, treated the environment, and provided diagnostic consultation, laboratory

tests, and often prophylactic or therapeutic agents for the use of private practitioners. The private physician reported cases to the health department and availed himself of its services. He usually treated his patients in their homes, and since the course of most communicable diseases is short, his contacts with the department were brief and his need for further community services was comparatively rare.

This was a good "division of labor"—and it still is in some situations; but the very success of that division of labor in the past has contributed to the rise of new health problems which require a group-to-group approach. In fact, if our major resources for the conservation of health—our medical societies, our hospitals and health departments—continue on a "divisive" basis, rather than on the basis of cooperation in its fullest sense, our last state is likely to be worse than our first.

The common infectious diseases of childhood are no longer major public health problems. Even so, our health departments must maintain constant epidemiologic surveillance over these still-active infections, so as to detect promptly and provide the services needed to curb unexpected and isolated epidemics. It may astonish some physicians to learn, for example, that in an outbreak of diphtheria in a small rural community recently there were 30 cases of the disease with four deaths. None of the private physicians in the community had ever seen a case of diphtheria.

In a thickly populated urban-rural county recently, an outbreak of infantile diarrhea baffled private physicians with respect to the source and the mode of spread. An epidemiologic team from the state health department conducted a study at the request of the medical society, with such thorough effectiveness that the society is now promoting the establishment of a district health department in that area. Few younger physicians have opportunity these days to observe the epidemiological method in action. Yet epidemiological techniques have been adapted to the study of noncommunicable diseases and their widespread application is urgently needed.

In the field of tuberculosis, as well as in encephalitis, poliomyelitis, infectious hepatitis and other viral diseases, continued research and concerted action by health departments, hospitals and medical groups are needed. Neither can we be satisfied that maternal and infant mortality rates have been reduced to an irreducible minimum. Can we not do more in the prevention of congenital and neonatal conditions that leave the surviving infants permanently disabled?

In general, however, the chronic degenerative diseases, neurological diseases, sensory disorders, mental disease, and severe injuries due to accidents

make up the major health problems for the nation as a whole. All age groups are represented among those afflicted by these conditions whose one common characteristic is prolonged duration. Care of the "long-term patient" is, in fact, the chief health problem for the physician and the patient's family, for the community, and for the nation as a whole.

Combined with the shifts in our major health problems, changes in the social and economic patterns of our communities have a tremendous impact on the effectiveness of patterns of medical care and public health services designed for a by-gone age. Sixty-five per cent of the American population now lives in cities, whereas the reverse was true fifty years ago. Our agricultural economy has shifted to an industrial economy, with an increase in industrial production of more than 200 per cent since 1940.

Moreover, the population of the United States doubled in the first half of this century, to 150 millions in 1950, with predictions of an increase to 228 millions by 1975. California has become almost the classic example of population growth and of the tremendous shift in population during the single decade, 1940-50. Even within the past five years, the population of California has increased by 18 per cent, and it is estimated that by 1965 this state will outstrip in population the present most populous state, New York.

Life expectancy at birth has increased from 49 years in 1900 to about 69 years in 1953. An aging population has attended this increased average length of life. At present there are about 13 million persons aged 65 years and over in the United States, as compared with three million in 1900. At present mortality rates, that figure would be 21 million in 1975. With intensive application of present preventive, therapeutic and restorative methods, the number of older people is likely to be larger even without the predicted new medical discoveries for the control of diseases in the aged.

DEFINING TODAY'S COMMUNITY HEALTH NEEDS

So times do change. Nothing stands still. We recognize that change is inevitable and essential for survival. Health is no exception. As members of the medical profession we have contributed to these changes. The dramatic and unprecedented progress made in the fields of medicine and the allied services have in reality created new health problems.

Changing health needs compel us to take an even more active role in guiding these changes for the greatest benefit to all without loss of individual dignity and freedom.

A few years ago, a banker told the author that his colleagues opposed the idea of guaranteed deposit insurance on the basis that it was unsound and

unworkable. The public liked the idea and eventually it became law. Fortunately, the principle was proven sound, the program works and the bankers were wrong, for once. The example illustrates that what the public wants and wants strongly enough, it gets. The wheels of progress grind ever so slowly, but they do grind inexorably. How can we, as physicians, with our training, our experience and our proud tradition of public service, help guide the wheels of progress and insure that the health needs of our community, our state and our nation are met in a positive manner with emphasis upon individual responsibility and when government is involved, make it at as local a level as possible and close to the people it serves.

The most important action we can take is in our local community, to participate with others in studying, analyzing and resolving the health needs of our own area. Most health problems are local in origin; their solution can best be achieved locally.

What, specifically, can physicians, health departments and hospitals do?

Defining our problem is the first step. The three groups might well initiate studies in several areas to determine:

(a) The incidence and prevalence of disease, injuries and impairments;

(b) The nature, degree and duration of resulting disability and,

(c) The type of care received. A study comprising some of these items is under way in one area in California, sponsored by the State Department of Public Health.

How have changing medical care, an increased life expectancy, an aging population and increased chronic illness and disability affected hospitals, the character of patients they serve and the kinds of services needed? What practices and policies need changing by each of us to assure the best of modern medical care? How can these changes be made insuring that public health services complement the personal services of the physician to his patient and not supplant or substitute some intervening agency or group?

A study of general hospitals in Maryland⁵ revealed one in every eight patients had been there 30 days or longer. Does this imply that hospitals are becoming more custodial than healing and teaching centers? Rusk and Dasco⁶ emphasized that the kind of therapy and the kind of institution required in chronic disease differ, depending on the kind of chronic disease. A patient with coronary disease has quite different care needs than the hemiplegic or amputee who could be treated as well if not better in a home. They reported a study of 95 unselected custodial patients in a New York City hospital whose average age was 68.5 years. It was

determined only seven needed continued hospital care—11 were considered suitable for rehabilitation and 85 did not need either definitive medical care or rehabilitation. Three of the 95 patients had had 19,000 days of hospitalization at an approximate cost of \$228,000.

This example is not duplicated in many hospitals but does point up the need for joint evaluation of patient needs and care in each of our hospitals and action to meet these needs in the hospital, the nursing home or the patient's home. Would it not be profitable for physician, hospital administrator and health officer to study the proportion of general hospital patients who need services provided outside the hospital? What are the characteristics of this group, their age distribution, sex, race, and diagnosis? What community services are available outside the hospital? What additional community services are needed? How can you match appropriate facilities and services to the needs of the patient? What can be done to assure easy flow, back and forth, of long-term patients between home, hospital and other institutions? In broadening and improving hospital service to the community, what problems need first to be resolved? Too many hospitals are characterized by poor organization, in key departments or throughout the institution. Some hospital governing boards, administrators, medical staffs and other professional personnel neither understand nor accept their own responsibilities in the institution nor accord to others their proper function in the administrative organization. The absence of a unified approach is evident in too many hospitals. Those responsible for the direction of a hospital program have not determined the health needs of the community nor established specific objectives to meet these needs. Without clear definition of objectives, the hospital organization becomes too compartmentalized. As a result, the interest of professional personnel is limited to their professional responsibilities. They do not develop a feeling of responsibility to the hospital as a community institution.

In some hospitals, medical research is far outdistancing the development of the hospital care program. Many communities have not accepted the hospital as one of the essential institutions of society. Too many board members are selected without regard to ability and do not have a proper understanding of their job. A result may be failure to properly delegate authority to the administrator. When this happens, the medical staff and other personnel in the hospital organization do not have a clear-cut concept of their relationship to the administrator. Frequently, the administrator becomes too engrossed with routine details and neglects his major function of planning for the development of his hospital in meeting changing community health needs.

On the other hand, physicians have not always accepted their responsibilities to the hospital. They rarely have training in the principles of medical staff organization and functions. In our training as physicians, too little emphasis has been placed on teaching us to work with allied professional groups. The legal implications of practicing within the hospital is not understood by enough of us.

Encouragement should be given to the hospital to bring together the board, administrator and medical staff to evaluate and revise practices to provide the best patient care and community-wide service.

Some of the problems of relationship of physicians, hospitals and public health weaken our present efforts and might cause us to be discouraged about our being able to go on effectively together. Each of our groups is likely to lay the blame at the door of one of the other groups or of some other force. Is this the case? Or is our present problem due largely to the failure of each of our three major health services—namely, physicians, hospitals and health departments—to come to grips with the real health needs of our people today and to adjust our services accordingly? It has been said that our major health services are all still geared to providing services for persons with acute diseases, even though the primary health needs today are in the field of chronic diseases. Before there can be any basis for cooperation and a good relationship among physicians, hospitals, and health departments, there must be *understanding* and there must be *agreement* as to what the health needs are, how they can be met, what are our respective roles and how can we work together. We are just denting the surface in reaching an understanding with regard to chronic diseases. Until we have complete understanding, we cannot expect to be able to reach agreement. Perhaps, if we applied even half of the efforts now spent in disagreements to arriving at a fuller understanding, we could make much faster progress toward an eventual solution.

Joint Community Services Needed

A diabetic in coma was treated in a hospital then discharged after ten days to his home. A month later, he returned in the same condition. On his third readmission, gangrene had developed, necessitating an amputation. Would follow-up from the hospital and services from the health department, under the direction of the patient's physician, have prevented the amputation and the need for recurrent hospital care? Does the need for education of the patient concerning his disease and the provision of home nursing care and sound nutritional advice to this patient illustrate the combined role of physician, hospital and health department in meeting patient care needs without violating the primary responsibility of the attending physician?

Rehabilitative Services

Chronic diseases and disabilities bring to a focus the importance of rehabilitation as a part of total patient care. What happens to the woman who has hemiplegia following a cerebral accident? Does she stay in the hospital as long as her insurance provides care because her husband cannot continue working and care for her at home? Is rehabilitation begun during her hospital stay? Are services available in the community to enable her at the end of ten days to return home where she will be happier and still receive complete care under the supervision of her physician? In addition to medical care, she may need one or all of the following services: Home nursing care, housekeeping services, physiotherapy, transportation, and training to learn to care for herself. The personnel needed to supply complete rehabilitative services includes the family physician, nurse, physical therapist, housekeeper, occupational counselor, religious leader, family and employer. Which of these services are available from the hospital and health department in your community? Do other community agencies provide some of these services? Are physicians enough aware of the need for and availability of these services and how they can be secured? Supplying necessary rehabilitative services emphasizes more than any other instance the combined role of the physician, hospital and health department in meeting community needs.

Preventive Medicine

Care and prevention of chronic illness and disability are inseparable. The Commission on Chronic Illness states that¹: "The basic approach to chronic disease must be preventive, otherwise the problems created by the chronic diseases will grow larger with time, and the hope of any substantial decline in their incidence and severity will be postponed for many years." Local health services require strengthening and extension to provide supplementary services to the long term patient. Home nursing care, nutrition services, mental health activities, accident prevention programs, increased emphasis on housing and health programs for the child and school-age youngsters are important areas for local public health departments.

The prevention of rheumatic fever and bacterial endocarditis points up the need for joint planning and action. In 1953, some 1,500 youngsters under 25 years of age died of rheumatic fever and rheumatic heart disease. An additional 19,000 persons over 25 years died of the same conditions. A sound control program includes accurate recognition of streptococcal infections, adequate treatment and the control of community epidemics.

There is increasing evidence of the value of vaginal cytology as a means of finding cases of

uterine cancer. A three-year study in Memphis, Shelby County, Tennessee, was begun in 1952. A preliminary report² has been given on the first 30,000 women examined. Ninety per cent of specimens were "negative," six per cent were unsatisfactory. In four per cent further study was recommended, and in slightly less than one-half of that four per cent, biopsy of tissue was recommended. Then, in about one-half of these, invasive carcinoma or epithelial changes warranting a diagnosis of carcinoma in situ were found. If this screening technique is validated further and found practical, here is another effective preventive service requiring the working together of physician, hospital and health department. Preventive medicine requires public understanding as well as serious professional study, evaluation and aggressive action.

Today it is generally accepted that an educated and enlightened group of citizens can and do best solve their own health problems, those of their families and their communities. Moreover, the nature of today's health problems—chronic disease, mental health, and accident prevention—demands that in addition to technical skills all health workers must be capable of utilizing educational and community organization procedures. We must not be guilty of telling people what to do, but we must help them become the kind of people who will know what to do.

Physicians and organized medicine are rightfully if a little tardily assuming a more active role in health education. Health forums sponsored by local medical societies have served a most useful purpose, including the demonstration that the physicians of a community can work together and pool their efforts in a common cause. Hospitals need to take a more active part in health education for patients, and on a community basis, jointly with physicians and health officers.

The author believes that communities do best solve their own needs. Some observers believe that the most important deterrent to a community's solving its health needs is an economic one. This undoubtedly is true in some cases. A much larger number, however, have failed to provide adequate community health services not because of a lack of funds but because they have not been convinced that the benefits to be derived justify the expenditure. One community of thirty thousand people built a high school gymnasium at a cost of one million dollars. The health department of this same community consists of a part-time health officer and one nurse. This community bought what seemed of value to it.

CONCLUSION

Osler, in his essay on Chauvinism in Medicine,³ listed four great qualities of the medical profession:

Its noble ancestry, remarkable solidarity, progressive character and singular beneficence. As members of this profession, we are justly proud of these characteristics, true today as in Osler's time. Our rapidly changing civilization, bringing with it complex social and economic problems and the impact of new health needs makes it increasingly difficult to maintain these traditional concepts. We cannot dissociate ourselves from the community, its problems and especially its total health needs. To fulfill our responsibilities requires:

1. Joint study, planning and action in the community on its health needs.
2. A combined attack with teamwork, not a division of labor, each performing the services according to training, experience and resources.
3. Planning and coordination of services to meet community health needs rather than conforming to any standard pattern. The means to accomplish planning and working together can be by group, agency or committee, but without centralization of control or administration by any one group or individual.
4. A healthy skepticism toward routine and accepted patterns and services. Differences of opinion will inevitably arise but are important only as they point up or reveal the issues needing study and with which we must deal. What counts most is the way we deal with them. Conflict is an element of growth; the resolution of conflict is growth.

Physicians, hospitals and health departments must not be too proud to work with each other and with other groups. Someone has said that "a proud man is like an egg—an egg is so full of itself that there is no room for anything else."

While each of our roles is distinct, the wide chasm separating public health from private physicians and hospitals is fast disappearing. The present health needs of our people require us to work together, not with a division of labor, but as a team to provide effectively the health services our people and our communities need.

REFERENCES

1. Chronic Illness, Commission on, Conclusions and Recommendations, Sixth Annual Meeting, April 29-30, 1955, Park Sheraton Hotel, New York.
2. Dunn, J. E., Jr., and Sprunt, D. H.: Uterine cancer case finding by vaginal cytology, *Public Health Reports*, Vol. 70, No. 4, April 1955.
3. Osler, Sir William: *Aequanimitas* with other addresses, P. Blakiston's Son and Company, Inc., 1932, Philadelphia, Penn.
4. Ristine, E. R.: The physician's responsibility to the community, *J. Med. Soc. N. J.*, Vol. 51, No. 9, Sept. 1954.
5. Roberts, Dean W., and Krueger, Dean E.: One in eight is a longterm case, *Hospitals*, *J. Amer. Hosp. Assn.*, Jan. 1955.
6. Rusk, H. A., and Dasco, M. M.: Dynamic approach to the care of the chronic, *Hospitals*, *J. Amer. Hosp. Assn.*, Jan. 1955.

Repair of Nerve Injuries in the Hand

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REPORTS ON INJURY to nerves in the hand are scarce. Yet industrial trauma of this type occurs with considerable frequency. A tabulation of permanent disability awards in Southern California discloses that in 1 to 2 per cent of cases the claim for compensation is based on sensory loss following finger injury. In some digits nerve injury is rated equal to amputation. "Blind," feelingless fingers are not only useless but hazardous. The demands of our modern precision industry cannot be met by atrophied, numb, lifeless, claw digits. Such hooks are exposed to the risk of constant re-injury and to the development of trophic ulcers and general deterioration. The situation is aptly expressed by the patient who states: "It's no good—you might as well cut it off."

A review of the records of an industrial clinic at which the author practices, covering nerve injuries to the hand during the past three years, shows that all classifications of industry are represented. In about 90 per cent of cases the common volar digital nerves were involved; the proper volar digital nerves in 5 per cent; the superficial branches of the radial and ulnar nerves in 3 per cent; the thenar motor branch in 1 per cent; and deep branches of the ulnar nerve in 1 per cent. Other smaller nerves were not tabulated.

This presentation is primarily concerned with the management of injuries to the common volar digital nerves, since they make up the bulk of cases. But the principles which will be presented are also applicable to all other nerves of the hand.

The pyramiding incidence of "blind" fingers can be halted by primary nerve repair. A freshly injured hand is essentially a healthy hand, in contrast to a convalescing, congealing appendage. Operation on a well nourished hand is followed by rapid healing. Peripheral sensory nerves resist infection and heal by first intention, as long as the adjacent tissues have not undergone atrophy. Psychologically the patient will never be more readily willing to consent to an operation than immediately after the accident. The longer the time after the injury, the greater the patient's resistance to secondary repair. Restitution of normal anatomic relationships by immediate operation cuts the time lost off the job almost in half, while it does not add to the discomfort con-

• Loss of sensation in a finger due to industrial injury is of rather high incidence as a cause of disability. In many cases "finger blindness" can be prevented by nerve repair immediately after injury. Over a period of three years at a clinic for treatment of industrial injuries, primary nerve repair resulted in 95 per cent of cases in usefully functioning digits.

nected with the merely temporizing procedure of closing the wound.

The method of treatment here described, while not original, is the result of experience with a considerable number of such nerve injuries at the clinic.

The majority of disabilities are due to direct or indirect physical forces acting on the nerve and causing contusion, partial severance or complete division. Injury may be produced by sharp cutting instruments such as knives and tin; semi-sharp spinning tools, such as power saws and emery wheels; or by the blunt, contusing, tearing impact of objects like punch presses and falling castings.

Sharp cutting injuries usually result in a clean division of the nerve. If, however, the injury occurred while the nerve was in a stretched position, the ends may be frayed. Semi-sharp spinning forces cause nerve fraying distal and proximal to the wound. A moderate amount of bony and soft tissue destruction accompanies such an injury. Blunt, contusing, tearing trauma presents the major problem, since a considerable length of the nerve may be lost, the soft tissue compressed to a disorganized pulp and the bony tissues distorted. What remains of the nerve is usually contused, hyperemic, frayed and edematous. Occasionally the cut ends are hemorrhagic and thrombotic, suggesting a ruptured vessel (Figure 1).

Normally, the nerve is pinkish-white (Figure 2). Upon cross section, axons and a sheath of tissue paper thickness, traversed by longitudinal small blood vessels, can be grossly observed. The nerves course along the lateral volar surfaces of the fingers; together with the accompanying arteries and veins they form neurovascular bundles which measure approximately one-eighth of an inch in diameter (Figure 3). Surrounding soft tissues do not only protect the bundle but can be extremely effective in concealing its structures by folding over the cut and retracted vessels and nerve endings.

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Figure 1.—Dorsum of hand photographed a half hour after injury. Several sensory branches of the ulnar nerve are contrasted by the sponge. Some of the lacerated nerve ends are covered by thromboses from the vessels of the sheath, which make the nerve end appear as if it were a thrombosed vessel.



Figure 2.—Normal common volar digital nerve in the live hand, exposed and separated from the artery and vein. The nerve is glistening pinkish-white and round, but slightly flattened on the dorsal and palmar aspects. The size of the nerve may be gauged by comparing it with the mesh of the underlying gauze sponge.



Figure 3.—Neurovascular bundle just proximal to the distal flexion crease in the freshly injured hand. The intimate relationships and gross similarity of artery, vein and nerve are shown. Note the blending of soft tissues and neurovascular bundle.



Figure 4.—Common volar digital nerve, repaired distal to the distal flexion crease. At this point the nerve branches are sending an inferior twig to supply the pulp, and a superior twig to the nail bed. These divisions have been sutured to the main trunk. Number 6-0 silk hold sutures have been placed; the palmar surface has then been rotated dorsally in order to facilitate suture of the volar portion of the nerve. The vessels of the neurovascular bundle can be seen inferior to the retracted nerve. Extension of the wound along the dorsolateral aspect of the finger is demonstrated.

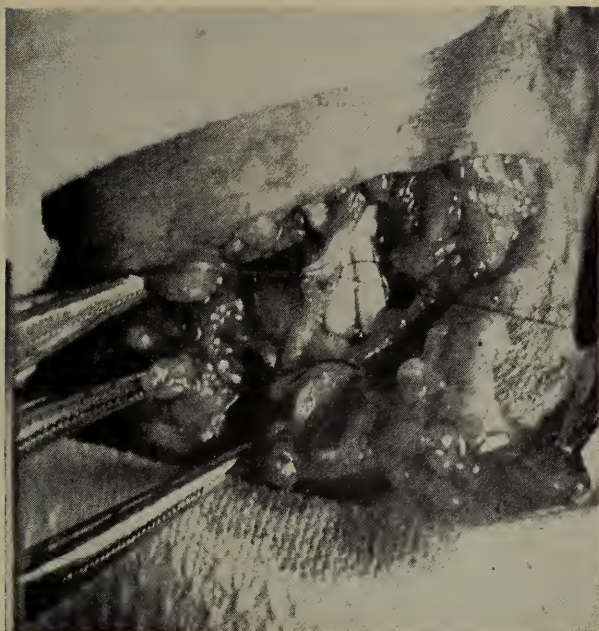


Figure 5.—Two guy sutures have been placed and rotated so that the palmar surface of a superficial branch of the ulnar nerve becomes dorsal. Extensor tendons to the little finger are seen deep to the nerve.

Complex surgical problems are likely to arise when such small and intimate structures are subjected to trauma. At the time of operation the vessels appear white, thus simulating nerves, while the blood vessels coursing along the nerve sheath may be thrombosed, suggesting volar vessels. Usually these components are mingled with the soft tissues, and may be further disguised by the interposition of tendons and fractured bone.

Nerve repair must have top priority in all injuries to the hand. If, for some reason, primary repair is deferred, the nerve ends should be secured to one another by a fine stainless steel wire to prevent nerve shortening before the time of secondary repair. Primary repair may be performed up to six or eight hours after injury. The more proximal the site of severance, the easier the repair. It is generally recognized that when the injury is beyond the distal flexion crease, nerve repair should not be attempted. However, if the nerve trunk is of sufficient diameter to accommodate one or two sutures, approximation is in order (Figure 4).

All cases of injury to the digits are appraised for possible nerve damage by sensory tests. Usually a digital nerve block proximal to the wound suffices, but occasionally a median and/or ulnar nerve block may be indicated. Surgical technique must be exact in every detail. The entire hand and arm are washed for five minutes with Gamophen® soap, particular attention being given to the wound. The extremity is then draped in the accepted manner, and a tourniquet is applied. Meticulous wound

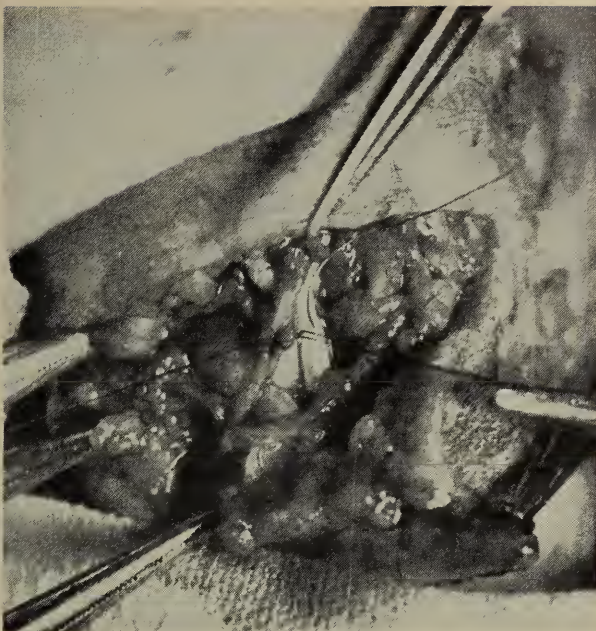


Figure 6.—Approximation of the neurilemma is completed by interrupted sutures placed between the steady sutures. Number 6-0 silk in an atraumatic needle can be seen passing through the sheath of an unrepaired nerve. The needle lies on an extensor tendon.

debridement under avascular conditions follows. Extension of the wound along the lateral borders of the finger insures adequate exposure (Figure 4).

The nerve ends are rarely exposed, and a methodical search for them is usually required. This is best done with sharp, pointed, curved scissors, used in a spreading fashion; they are applied one-half inch proximal and distal to the wound, parallel to the neurovascular bundle. The nerve is then identified and separated from the vessels (Figure 2). At each of the nerve ends a minimal length of the strand is resected at a time, until normal tissue is reached. The cut section shows a sharply defined neurilemma, and the lumen contains a bristling core of axons; these findings serve as the ultimate differentiation between nerve and vessels. Trial approximation is then attempted. If the ends do not meet, additional nerve fiber must be mobilized. This maneuver is kept to a minimum, since excessive separation of the nerve from its surroundings would interfere with vascularization. Any further nerve gaps may be closed by finger flexion. The suturing should be done when a relaxed approximation has been attained; No. 6-0 silk on an atraumatic needle is run through fatty tissue to straighten kinks and insure a freely gliding suture.

The first suture is passed only through the neurilemma, and as close to the cut edge as feasible. The directly opposite sheath is caught by the same suture, matching corresponding sheath vessels and axons. The suture is then tied and held by a small hemostat.



Figure 7.—Final suture has been accomplished. Knots are cut flush. Sheaths and axon bundles are aligned. The juncture sites still appear moderately rough as compared to an uninjured branch (right). A hemostat exerts traction; it is then slid proximally and distally over the suture sites, and the surgeon's index finger rolls the juncture area against the surface of the hemostat. Final and accurate apposition of axon to axon and sheath to sheath is attained through these maneuvers.

An identical suture is placed diametrically opposite the first one, and secured by means of a hemostat. The nerve is now stabilized and two or more sutures are easily placed, tied and cut at the knot. (See Figures 5 and 6.) One of the holding hemostats is passed under, the other one over the nerve, rotating the dorsal aspect toward the palmar side. This permits easy suturing. All sutures are cut flush at the knots, and the juncture site is rolled over a blunt hemostat to insure accurate approximation of neurilemma and alignment of axon bundles (Figure 7). Inaccurate closure of the sheath invites distal probing axons to escape and form painful neuromata.

Soft fatty tissue mobilized about the suture site prevents troublesome adhesions and affords protection against moving parts (Figure 8). The skin is closed by interrupted stainless steel wire sutures placed at a distance from the nerve. A fluff gauze dressing and a stockinette cut on the bias provide adequate counter pressure. The tourniquet is then released. A volar plaster splint keeps the digit fixed in a position of function to prevent nerve

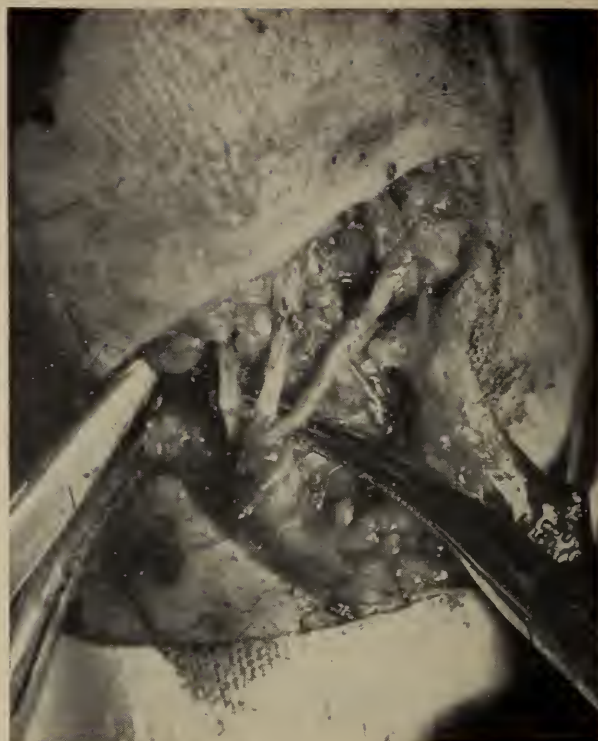


Figure 8.—Wound ready for closure. The sutured nerve branches are now uniform in size. The juncture sites are smooth and present no openings through which axons can escape. Fatty tissue has been mobilized to separate tendons from nerves. The site of nerve repair is enveloped by areolar tissue.

tension. Antibiotic and antitetanic therapy is now begun. Patients are treated while ambulatory. Dressing and splint are not disturbed for three weeks, unless to do so becomes necessary for clinical reasons. After removal of sutures, restricted motion of the finger is permitted. Nerve regeneration begins within eight to ten weeks, as demonstrated by return of sensation, and reaches its maximum after one year.

In most cases here reviewed the postoperative course was uneventful, and there were no instances of infection or of silk suture slough. All wounds healed per primam. Coarse touch sensation and response to painful stimuli began to reestablish themselves after eight to ten weeks. Somewhat later, light touch perception was recovered in most patients, but remained lacking in a few. After one year most patients were again capable of stereognostic sensation, but about one in ten complained of some degree of numbness. In 95 per cent of cases nerve repair resulted in usefully functioning digits; in the remaining 5 per cent loss of soft tissue and bone had been too extensive to permit adequate restoration of function. Neuromata were rare, and they occurred only in cases in which trauma was of the blunt, contusing, tearing type.

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Vitamin U Therapy of Peptic Ulcer

Experience at San Quentin Prison

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DURING THE PAST SIX YEARS the medical literature has contained reports on the treatment of peptic ulcer with a green plant substance contained in raw cabbage juice.^{1, 2, 3, 9} The clinical use of this substance, or anti-ulcer factor, which has been termed "vitamin U," was based on the results of animal experiments which indicated that peptic ulcer might be a nutritional deficiency disease.^{4, 5} Because of the great variability in the symptoms and x-ray features of gastric and duodenal ulcers under the usual uncontrolled conditions which exist in the application of many forms of therapy, the authors decided two years ago to set up a double blind control experiment to test the merit of vitamin U therapy in the management of peptic ulcer in humans. The results of this clinical experiment have been analyzed for this report.

ORGANIZATION OF THE EXPERIMENTAL PROGRAM

The Nuemiller Hospital section of San Quentin Prison, San Quentin, California, was chosen as the locus operandi of the experimental study. Permission to utilize prisoner patients was obtained from Dr. Morton D. Willcutts, medical director, who with his staff physician, Dr. Ralph Erickson, aided the project with the fullest of cooperation. The advantages of using the prison facilities for clinical investigation of this type cannot be overemphasized.

The population at San Quentin Prison is made up of almost 5,000 inmates, all men, varying in age from 21 years to advanced adult life. Many of the inmates of the prison are under life-term sentence. When any inmate feels ill with digestive tract disturbances, he reports on sick call and is examined by one of the prison physicians. If preliminary examination suggests peptic ulcer, he is referred to the x-ray department for routine diagnostic gastrointestinal examination. If an ulcer crater is clearly demonstrated, the physician in charge of his case refers him to the hospital. During the period of the

- A clinical study was undertaken to evaluate the effectiveness of concentrated cabbage juice in the treatment of peptic ulcers. Patients at San Quentin Prison with a diagnosed ulcer crater were treated in a double blind control experiment. They were given either concentrated cabbage juice or placebo facsimile. The evaluation of the merit of this treatment was based upon repeated x-ray examinations of the ulcer crater. A period of 22 days was allowed for ulcer crater healing time. The results of this experiment indicated concentrated cabbage juice to be effective in healing of peptic ulcer.

present study if the patient wished to enter the vitamin U double-blind control treatment program, he was admitted to a special division of the hospital for this purpose. On entering the hospital, he occupied an individual, locked room or cell where he remained during the period of observation, except that he might leave for some special purpose such as laboratory or x-ray studies; and at such times he would be accompanied by the orderly or by a guard. The cell contained not only a bed but also lavatory facilities. The patient received the usual hospital diet, which was a very liberal bland ulcer diet that contained less roughage than that commonly used for the inmates (Table 1). All the hospitalized prisoners on this program received the same diet no matter what medication they received.

No routine drug therapy of any kind was allowed the patient. If medications became necessary because of pain or for some other reason they were only specifically prescribed for a particular purpose by the ward physician in charge. Patients on the experimental ulcer therapy program were not permitted to have outside food or medication of any kind. The patients were regularly seen only by the prison physicians who were in attendance, the ward orderlies (who were trusty prisoners), and occasionally by guards relative to some administrative problem. None of these persons had any knowledge of what form of anti-ulcer therapy a prisoner received.

In order to administer controlled vitamin U medication to the prisoner-patients, two separate lots of materials were made up for therapeutic use, both of

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which were designated as MK-72.[†] The first was a preparation of vitamin U concentrate, each dose of which was derived from a quart of freshly pressed raw cabbage juice. The dose amounted to approximately 50 cc. per container and was flavored with syrup as previously described.⁶ The second form of medication was made up to look and taste and smell like the first but contained no vitamin U. This was designated as placebo. For each individual test case a series of 21 bottles, which constituted a three weeks course of treatment, was prepared. All medications were identified on the bottle by serial number and lot number only, so that there was no way of distinguishing between the cabbage juice concentrate and the placebo. Ordinarily each series of 21 bottles was administered to only one patient but occasionally when treatment was prematurely terminated before the entire series was used the remaining bottles might be used in treatment of a different patient. These exceptions are noted in Table 2. Each daily dose was administered to the patient as a single dose in the presence of the ward orderly to make certain that there was no break in the patient's receiving the proper therapy regularly. All the series of bottles were kept locked up and under refrigeration.

It was decided to evaluate the results of the double blind control treatment of peptic ulcer entirely on the basis of x-ray examinations of the ulcer crater. Consequently it was necessary for each case study to positively demonstrate an ulcer crater either in the stomach or duodenum at both the original examination and the first follow-up examination in order to make certain that the subsequent observations of crater healing time would be accurate. After the first x-ray examination and the beginning of MK-72 therapy, each patient had weekly x-ray examination for a period of three weeks. If the ulcer as observed roentgenographically, had not healed completely at the end of the three-week period, the patient might then be given an additional three weeks course of treatment. The new course of therapy would be determined by one of the authors relative to what the previous course of therapy had already been. For example, if the patient had had three weeks of treatment with placebo and had shown little or no evidence of ulcer crater healing, he would then be placed on a course of treatment with vitamin U. Such a change in treatment was never known to the ward personnel and the physicians caring for the patients, as therapy would ostensibly be continued on a six weeks basis instead of a three weeks basis because the ulcer crater had not shown healing. At no time before, during or after each individual therapeutic test did the roentgenologist who was making the fluoroscopic and x-ray examinations of the

patients, have any knowledge of what form of MK-72 therapy the patient was receiving.

The length of time from the beginning of therapy to the disappearance of the ulcer crater as roentgenographically visualized (so-called crater healing time) was accepted as the only positive or negative criterion of a therapeutic result, for it was felt that the interpretation of changes in symptoms, physical findings and laboratory tests as an indication of improvement would be too unreliable in a double blind control experiment of this type to give any reasonably accurate results.

RESULTS OF THE EXPERIMENTAL THERAPEUTIC STUDIES

Fifty patients who had active peptic ulcer were admitted to the experimental program from May 1953 to December 1954. Thirteen of these patients were ultimately dropped from the series primarily because of inadequate roentgenographic data, leaving 37 patients to be treated. These 37 patients were utilized for 46 individual therapeutic studies of three weeks each. The results are recorded in Table 2.

The irregular sequence of case numbers in Table 2 is due to "dropped cases" as well as to some misassigned numbers to patients who did not actually enter the program. Four patients were assigned two case numbers each, which indicates they were twice included in the program, having relapsed some months after the first course of therapy and reentered the series for the second time. The data for the total duration of the illness and for the length of the current attack indicate the pronounced variability in the history of peptic ulcer in cases in this series.

Ulcers located in the stomach were treated in 11 instances and clear-cut ulcer craters in the duodenum were treated in 35 instances. Three of the gastric ulcers treated were large (greater than 1.0 cm. in diameter) and seven of the duodenal ulcers were large (greater than 0.7 cm. in diameter).⁶ In the remaining 36 instances the ulcers were small.

The type of MK-72 therapy is shown in Table 2 for each course of treatment. Ten patients were retreated for three weeks during the same period of hospitalization because the ulcer crater had either failed to diminish in diameter at all (seven cases) or had not diminished more than 2 mm. in diameter (three cases). The designation of crater healing time in days indicates whether the course of therapy had been successful or not, as the ulcer crater must have been radiographically healed in three weeks' time (within 22 days) to qualify the case as a therapeutic "success." Case 53-10, in which vitamin U therapy was given and crater healing time was 49 days, was omitted from the statistical analysis because it was complicated by severe pancreatitis

[†]Supplied by Merck and Company, Inc., Rahway, New Jersey.

TABLE 1.—Liberal ulcer diet fed to all prisoner patients treated with MK-72. Sample shown for one day only

BREAKFAST	DINNER	SUPPER
Stewed prunes .....6	Lentil soup.....1 cup	Ground round steak.....1 serving
Cornflakes .....bowl	Crackers	Bland gravy
Soft boiled eggs.....2	Nucoa .....1 pat	Tossed salad.....2 spoons
Toast	Stringbean salad.....1 spoon	Whipped potatoes.....1 scoop
Nucoa .....1 pat	Welsh rarebit.....1 serving	Buttered zucchini.....2 tablespoons
Milk .....1 pint	Pear halves .....2	Ice cream.....1 scoop
Coffee .....1 cup	Milk .....1 pint	Bread
	Tea .....1 cup	Nucoa .....1 pat
		Milk .....1 pint
		Coffee .....1 cup

TABLE 2.—Results of MK-72 peptic ulcer therapy (vitamin U double blind control) at San Quentin Prison, May 1953 to December 1954

Case No.	Total Illness	Duration—Present Attack	Peptic Ulcer Location	Diam. in cm. (by X-ray)	Therapy (Vitamin U or Placebo)	Treated Month	Ulcer Crater Healing Time in Days
YEAR 1953							
1.	None previous	.....	Apex bulb	0.3	P	May	11
2.(6) *	15 yr.	3 mo.	Lesser curv. stomach at incisura	1.5	U	May	22
6.(2)	15 yr.	Relapse	Lesser curv. stomach at incisura	1.0	P	Aug.	No healing
				1.0	U	Sept.	11
9.	3 mo.	3 mo.	Central bulb	0.6	P	Sept.	Not healed
				0.4	U	Oct.	19
10.	1 mo.	1 mo.	Lesser curv. stomach	2.0	U	Sept.	49
11.	1 mo.	2 wk.	Apex bulb	0.7	P	Sept.	No healing
				0.7	U	Oct.	16
12.	8 yr.	6 wk.	Central bulb	0.7	P	Oct.	No healing
				0.8	U	Nov.	21
13.	1 yr.	.....	Greater curv. in gastric antrum	1.0	P	Oct.	No healing
				1.0	U	Nov.	34
15.	9 mo.	3 wk.	Duodenal bulb	0.5	U	Oct.	9
16.	6 mo.	.....	Middle bulb	0.5	U	Oct.	21
17.	3 yr.	3 mo.	Lesser curv. of bulb	0.4	P	Nov.	No healing
				0.4	U	Nov.	20
18.	1 yr.	9 mo.	Base bulb	1.1	P	Nov.	No healing
				1.0	U	Dec.	21
20.	10 yr.	3 mo.	Lesser curv. bulb	0.4	P	Dec.	11
YEAR 1954							
2.	4 yr.	2 mo.	Base bulb	1.0	U	Jan.	28
3. ....	.....	.....	Base bulb	0.5	P	Jan.	No healing
				1.0	U	Feb.	7
10.(27)	6 yr.	2 mo.	Central bulb	0.7	U	April	14
11.	12 yr.	1 yr.	Prepyloric	1.0	U	April	21
12.	3 mo.	3 mo.	Central bulb	0.7	U	May	11
13.	1 yr.	2 mo.	Prepyloric	0.4	U	May	10
15.(30)	1 yr.	4 mo.	Pylorus	0.6	U	May	21
16.	4 yr.	3½ mo.	Central bulb	0.4	P	May	13
18.(24)	7 yr.	1 yr.	Posterior wall duodenal bulb	0.3	U	June	20
19.	12 yr.	3 mo.	Midportion cap	0.4	P	June	Not healed
21.	4 yr.	.....	Apex bulb	0.7	P	July	Not healed
23.	6 yr.	4 mo.	Central bulb	0.6	P	July	Not healed
				0.4	U	Aug.	11
24.(18)	7 yr.	3 wk.	Posterior wall duodenal bulb	0.4	U	Aug.	20
25.	23 yr.	10 mo.	Lesser curv. midstomach	0.8	P	Aug.	12
26.	2 yr.	2 wk.	Duodenal cap	0.3	U	Aug.	16
27.(10)	6 yr.	9 days	Duodenal cap	0.5	P	Aug.	Not healed
28. ....	.....	.....	Posterior wall duodenal cap	0.5	P	Aug.	22
29.	5 yr.	3 wk.	Central bulb	0.3	P	Sept.	20
30.(15)	1 yr.	.....	Lesser curv. antrum	2.5	U	Sept.	18
31.	2 yr.	.....	Lesser curv. duodenal bulb	0.2	U	Nov.	17
32.	12 yr.	5 yr.	Lesser curv. duodenal cap	1.5	U	Nov.	22
33. ....	.....	.....	Central bulb	0.7	U	Nov.	15
34.	8 yr.	1 yr.	Duodenal bulb	0.8	P	Nov.	No healing
				0.8	U	Dec.	7

(P) = Placebo. (U) = Vitamin U.

*Four patients were twice included in the program. The numbers in parentheses are the case numbers assigned when they were treated the other time.

TABLE 3.—*Clinical analysis of therapeutic results*

Total number of completed case studies (including 10 gastric and 35 duodenal ulcers)....	45
Number of cases receiving placebo (including 3 gastric and 16 duodenal ulcers).....	19
Number of placebo successes (including 2 gastric and 11 duodenal ulcers).....	6 (31.6%)
Number of cases receiving Vitamin U (including 7 gastric and 19 duodenal ulcers).....	26
Number of Vitamin U successes (including 1 gastric and 1 duodenal ulcer).....	24 (92.3%)
Number of placebo failures retreated with Vitamin U at same hospital entry (including 2 gastric and 8 duodenal ulcers).....	10
Number successfully retreated.....	10

disclosed at operation. At operation it was observed that the large gastric ulcer in this case had actually healed, but that the degree of pancreatitis which persisted was extensive and severe. In another case of gastric ulcer (No. 53-13) also treated with vitamin U, but not qualifying as a "success" in three weeks of treatment, the lesion was healed two weeks later without additional vitamin U therapy. Similarly the large duodenal ulcer present in Case No. 54-2, which was not healed completely in three weeks, was healed in four weeks without any additional vitamin U therapy. In two cases of small duodenal ulcers (Nos. 54-21 and 54-27) in which placebo therapy was given, healing occurred ultimately, but not until after the three-week therapeutic period—a week after the end of the period in one case and two weeks after in the other. In both of these cases the patients received additional forms of treatment during this time which may have affected ulcer crater healing time favorably.

CLINICAL ANALYSIS OF THE RESULTS OF TREATMENT

A brief analysis of the therapeutic results shown in Table 2 is given in Table 3. It is evident that during three weeks of placebo therapy, healing occurred in slightly less than one-third (31.9 per cent) of the 19 cases treated. This proportion of "successes" during placebo therapy does not seem surprising when it is noted that there is a natural tendency of peptic ulcers to heal with bed rest, adequate diet, more or less relief from emotional tension, and the feeling that something constructive is being done to care for the ulcer pains. Certainly

some of these prison patients would be expected to improve on such a regimen. It should be noted that in all cases in which the lesion did heal during placebo therapy, the ulcers were small, with one exception—a duodenal ulcer 0.8 cm. in diameter—and that there is some good clinical evidence that small peptic ulcers heal more rapidly than large ones.^{6, 7, 8}

In all but two of the 26 cases in which vitamin U therapy was given, ulcer crater healing occurred within a period of three weeks—a "success" ratio of 92.3 per cent. As previously noted, the only two "failures" were healed at four and five weeks. In both of these cases the ulcers were large. As is shown in Tables 2 and 3, each of the ten patients who had had failure of treatment with placebos, later had healing within three weeks when treated with vitamin U.

CONCLUSIONS

The results of the double blind control experiments relative to vitamin U therapy of peptic ulcer indicate that vitamin U was clearly superior to a placebo in the treatment of gastric and duodenal ulcers.

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REFERENCES

1. Cheney, G.: Rapid healing of peptic ulcers in patients receiving fresh cabbage juice, *Calif. Med.*, 70:10, Jan. 1949.
2. Cheney, G.: Vitamin U therapy of peptic ulcer, *Calif. Med.*, 77:248, 1952.
3. Cheney, G.: *Medical Management of Gastrointestinal Disorders*. Year Book Publishers, Inc., Chicago, 1950.
4. Cheney, G.: Cinchopen gastric ulcers in chicks, *Arch. Int. Med.*, 70:532, 1942.
5. Cheney, G.: The nature of the antiulcer dietary factor, *Stanford M. Bull.*, 8:144, 1950.
6. Cheney, G.: Vitamin U concentrate therapy of peptic ulcer, *Am. J. Gastroenterol.*, 21:230, 1954.
7. Cheney, G.: The medical management of gastric ulcers with vitamin U therapy, *Stanford M. Bull.*, May 1955 (at press).
8. Steigman, S., and Shulman, B.: The time of healing of gastric ulcers: Implications as to therapy, *Gastroenterology*, 20:20, 1952.
9. Strehler, Von E., and Hunziker, K.: Behandlung von magendarmgeschworen mit kohlsaft und bananenfrappo (anti-ulcus-faktor, vitamin U), *Schweiz. med. Wchnschr.*, 84:198, 1954.

Malfunctioning Postgastrectomy Stoma

Diagnosis and Treatment

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OF ALL COMPLICATIONS following gastric operations, failure of the efferent or exodistal stoma to function properly is probably the most frequent. In the majority of cases, patients with this condition can be managed by conservative measures. It is to be stressed, however, that the particular circumstances in each case of postoperative gastric retention must be carefully appraised and that prompt surgical intervention must be in readiness if customary conservative measures do not bring about improvement.

Malfunction of the efferent stoma can occur after gastroduodenal or gastrojejunal anastomosis of any type. Mechanical difficulties at or distal to the stoma seem to be sufficiently common whether the anastomosis is done antecolic or retrocolic or whether it is placed antiperistaltic or isoperistaltic. In the immediate postoperative period, the addition of vagotomy to subtotal resection or gastrojejunostomy further adds to the difficulties of the stomach to empty properly. Prohaska⁶ postulated that subtotal gastrectomy with antiperistaltic gastrojejunostomy—that is, placing the efferent jejunal loop at the lesser curvature—is more likely to lead to gastric retention than is isoperistaltic anastomosis. The authors agree with him and feel that his concept of isoperistaltic and antiperistaltic is correct. Attempts to prevent this complication can be made by use of the Alesen T-tube (with which the authors have had little experience) or by passing an Einhorn tube through the anastomosed area into the distal jejunum and giving feedings through the lower openings and aspirating the stomach through the upper openings. The authors' experience with this method has not been too satisfactory. Gastroduodenostomy, or the so-called Billroth I operation, may also lead to a malfunctioning stoma.

Malfunctioning efferent stoma, or severe gastric retention occurring in the immediate postoperative phase, has been attributed to many factors. Edema at the site of anastomosis has been mentioned as a major cause, and the edema has been considered,

• Individualization in the treatment of patients with malfunctioning gastrojejunostomy stomas is paramount. Prompt surgical intervention in critically ill patients is necessary to save life.

In the early postoperative phase, the use of barium studies is disappointing and very seldom gives information as to the actual site of the obstruction.

In surgical treatment, operation directly upon the stoma should be avoided as much as possible. The release of small bowel obstruction, the reduction of intussusception or the correction of retraction of the jejunum through the mesocolon can be accomplished readily. Double or single jejunostomy for feeding and decompression are all that is necessary in cases in which no cause can be found for obstruction at or below the stoma.

In a patient with peptic ulcer, the use of enteroenterostomy below the stoma is unphysiological and will predispose to gastrojejunal ulcer at a later date.

variously, to be due to a lowered serum protein, particularly the albumin fraction; to an inflammatory reaction at the suture line; and, according to Roberts⁷ to low intracellular potassium. Mechanical conditions producing obstruction at or near the stoma can come from acute pancreatitis, anastomotic leakage, volvulus of the small bowel, excessive angulation of the jejunum at the greater or lesser curvature, too small a stoma with secondary inflammatory reaction, retraction of the line of anastomotic junction through the transverse mesocolon in the retrocolic type, a rigid and short mesocolon which fails to stretch on filling of the stomach and thereby causes too short a proximal loop, retrograde intussusception of the jejunum through the anastomosis, or pressure of the middle colic artery when the anastomosis is placed to the right of the artery.

Management of a malfunctioning stoma consists of adequate gastric decompression and in replacement of fluid, electrolytes and protein. The use of roentgen examination with barium swallow is almost universally disappointing in determining whether or not the obstruction is at the stoma or distal to it. The older the patient, the poorer the nutrition and general status, the shorter can be the length of con-

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servative treatment. Waiting 30 to 60 days for stomas to open would seem to be putting too much reliance on wishful thinking.

TREATMENT

Sachs⁸ advocated that a Levin tube with a weighted mercury bag be passed through the stoma. The authors' experience in two cases with this method has been completely unsatisfactory. In neither case could the bag be passed through the stoma. Both patients made uneventful recovery several days later without surgical intervention.

The nature of the operative treatment depends upon the conditions observed within the abdomen. Retraction of the jejunum through the mesocolon can be simply corrected. If there are adhesions in the efferent jejunal loop severe enough to cause obstruction of the small bowel, freeing them may be all that is necessary to relieve the dysfunction. In one case in which posterior anastomosis was done, severe recurrent pancreatitis brought about so much fat necrosis that at reoperation the anastomosis was undone and a new one was done anterior to the colon. This, it is believed, was a life-saving procedure in this case and the patient remained well thereafter.

As far as operation upon the stoma itself is concerned, one must consider jejunoplasty, described by Hoag,⁵ or intragastric widening of the stoma, as reported by Sawyer and Spencer,⁹ as being the most logical procedures. Jejunoplasty has the disadvantage of directing the alkaline contents of the duodenum below the stoma and may predispose to gastrojejunal ulcer. Operation upon the stoma itself may be extremely difficult if inflammatory reaction is present.

In the authors' experience the use of a single-feeding jejunostomy, placed approximately eight to twelve inches below the stoma, has been adequate to control this problem. Joyce advocated and used this method many years ago and results were so favorable that he frequently used it as a complementary procedure in patients who had gastric resection and who were malnourished or who had had extensive hemorrhage. During the last few years, the authors have added the second retrograde jejunostomy for decompression of the stomach, as suggested by Allen and Donaldson,¹ for this seems to be much better tolerated by the patient than a Levin tube for a long period of time.

Another method of solving this problem, in addition to direct operation on the stoma, consists of enteroenterostomy below the stoma. This procedure was advocated by Prohaska and Cole.² Recently, Colp³ also recommended it for use in cases in which the stoma appears normal at the time of exploration but does not function properly. Colp described in

detail a case in which enteroenterostomy was performed and, in addition, a feeding-type jejunostomy. He said that the enteroenterostomy did not relieve the patient's symptoms but that after feeding was carried out through the jejunostomy for some days, the stomach began to empty normally. Undoubtedly, the feeding jejunostomy was the procedure that gave the patient relief. The authors believe that use of enteroenterostomy in the treatment of malfunctioning gastrojejunal stoma is to be condemned and that when this operation is done, gastrojejunal ulcer may develop later. This procedure is actually a modification of the Mann-Williamson experimental operation. Dragstedt^{4, 10} observed that vagotomy protected about one-half of dogs that had had the Mann-Williamson operation from stomal ulcer; that resection of the gastric antrum protected two-thirds of these animals from stomal ulcer; and that vagotomy and antrectomy, combined, were even more effective. Therefore, the use of enteroenterostomy for malfunctioning stoma is unphysiological except for patients on whom vagotomy and subtotal resection, including antrectomy, have been performed. It is obvious that only a small proportion of patients with malfunctioning stoma will be of that category.

REPORTS OF CASES

Group I

The following case illustrates obstruction at the stoma, probably due to stomal edema, in a patient who had had posterior Hofmeister gastrojejunostomy.

CASE A. A 54-year-old oil company executive with proven peptic ulcer of two years' duration was admitted to hospital May 23, 1949, with melena and hematemesis. The blood that was lost was replaced and the bleeding subsided. Subtotal gastrectomy and posterior Hofmeister gastrojejunostomy were carried out. Bile was obtained in the gastric contents during the first six postoperative days. Then, for five days, there was no bile in the material. X-ray examination with barium swallow showed obstruction of the stoma. Electrolytes and serum proteins were normal. A Harris tube weighted with 6 cc. of mercury did not pass through the stoma in 48 hours. Suction was continued. At this time (the eleventh postoperative day) the stomach started to empty and bile was contained in the material removed by suction.

The next case illustrates the diagnosis and management of stomal edema late in the postoperative course, following subtotal gastrectomy with anterior Hofmeister gastrojejunostomy.

CASE B. A 41-year-old electrician was admitted to hospital April 27, 1954, with a history of recurrent peptic ulcer for the preceding three and a half years. Response to conservative therapy had been unsatisfactory. Subtotal gastrectomy with a Hof-

meister anterior gastrojejunostomy was done April 28. Two weeks after operation the patient was readmitted with epigastric distress, relieved by vomiting, of two days' duration. On admission, electrolyte values were within normal limits. No barium passed through the stoma during fluoroscopy. Constant Levin tube suction was applied for three days. Then progressively a postgastrectomy diet was given and the patient recovered. He was discharged from the hospital in November, 1954.

The following case illustrates the diagnosis and management of stomal edema late in the postoperative course after subtotal gastrectomy with Billroth I gastroduodenostomy.

CASE C. A 71-year-old retired man was admitted to hospital January 24, 1954, for removal of gastric polyps, diagnosed by gastrointestinal x-ray examination. A subtotal gastrectomy with Billroth I gastroduodenostomy was done. The patient made uneventful recovery and was discharged on the seventh postoperative day. He was readmitted three weeks later with gastric retention and vomiting of ten days' duration. Upon examination with barium swallow, gastric retention was observed at first, but after an hour a large portion of the barium passed through the small bowel. Electrolytes and serum protein values were within normal limits. Levin tube suction was carried out for seven days and the patient made uneventful recovery.

Group II

The first case in this group illustrates the diagnosis and management of an efferent loop obstruction distal to the stoma in an anterior Polya gastrojejunostomy.

CASE A. A 41-year-old aircraft engineer was admitted on November 21, 1954, with a history of peptic ulcer of seven years' duration. A subtotal gastrectomy with an anterior Polya gastrojejunostomy was performed on November 24. A Levin tube with constant suction was used for three days. Gastric contents were bile-colored and averaged 600 to 700 cc. daily. The Levin tube was removed and the patient was given a postgastrectomy diet beginning on the fourth postoperative day. Gastric retention developed, with vomiting from the eighth to the twenty-third postoperative day. At this time, x-ray examination with barium swallow revealed a patent proximal stoma with an obstruction at the distal stoma and considerable distention of the stomach. The electrolyte values and albumin-globulin ratio were within normal limits. Reoperation was done on the twenty-third postoperative day. Dense adhesions extending from the liver and pancreas to 3 to 4 cm. distal to the efferent stoma were divided. A double-catheter jejunostomy was performed. Both catheters were removed on the eleventh postoperative day. The patient made uneventful recovery.

The following case illustrates the diagnosis and management of stomal edema and inflammation that

progressed to diaphragm formation and brought about obstruction in an anterior Polya gastrojejunostomy.

CASE B. The patient, a 69-year-old Italian vintner, had a long history of duodenal ulcer and chronic bronchitis. In December 1949 a posterior gastrojejunostomy with subdiaphragmatic vagotomy was done for duodenal obstruction from chronic duodenal ulcer. The vagotomy was known to be incomplete because of technical difficulties that arose during the procedure. The patient remained well for two years after the operation, then had massive hemorrhage from a gastrojejunal ulcer. He was admitted to hospital and there received 4,000 cc. of blood during the first 12 hours. Subtotal gastrectomy with an anterior Polya gastrojejunostomy was performed on April 20, 1951. Increasing gastric retention developed immediately. Upon barium swallow examination, obstruction of the stomach was observed. Serum proteins and electrolyte values were within normal limits. A week after operation a Witzel feeding jejunostomy was performed. At that time the stoma was not abnormal. Gastric retention continued and x-ray examination showed the stomach still obstructed. Twelve days after the jejunostomy, a stomal diaphragm was excised and a partial Noble plication was performed on a portion of proximal jejunum. The patient made uneventful recovery.

The next case illustrates the diagnosis and management of an efferent loop obstruction by adhesions in a posterior Hofmeister gastrojejunostomy.

CASE C. A 62-year-old oil company executive was admitted January 18, 1950, with a history of intractable duodenal ulcer with partial obstruction for the preceding 18 years. At operation the following day the ulcer was found to have penetrated the pancreas. Subtotal gastrectomy with a posterior Hofmeister gastrojejunostomy was performed. On the eighth postoperative day, gastric retention developed. Barium swallow examination showed a completely obstructed stomach. Electrolyte values and total serum proteins were within normal limits. A Harris tube with 6 cc. of mercury did not pass through in 48 hours. On the sixteenth postoperative day laparotomy was carried out and the efferent loop was observed to be obstructed by adhesions just distal to the stoma. Jejunoplasty was performed. The patient made uneventful recovery except for persistent hiccup which was relieved by phrenic crush (left).

The following case illustrates the diagnosis and management of an efferent loop obstruction due to an inflammatory reaction from acute pancreatitis in a subtotal gastrectomy with posterior Hofmeister gastrojejunostomy.

CASE D. A 32-year-old fireman was admitted January 30, 1951, with a history of peptic ulcer and tarry stools intermittently for 16 years. Subtotal gastrectomy, including excision of a posterior pene-

trating ulcer, with posterior Hofmeister gastrojejunostomy was done. Gastric retention developed on the tenth postoperative day. Barium swallow examination showed patent stoma. Serum amylase and urinary diastase were considerably above normal. Vomiting continued and on the sixteenth postoperative day a roentgen examination with barium swallow showed a completely obstructed stoma. The electrolyte values and total serum proteins were within normal limits. Laparotomy was carried out on the eighteenth postoperative day. Extensive fat necrosis and inflammatory reaction and edema of the mesocolon around the site of anastomosis were observed. The anastomotic area was freed from adjacent constriction and an Einhorn tube was passed into the distal jejunum. On the sixth postoperative day the tube was removed. Gastric retention immediately developed. Elevated serum amylase and results of urinary diastase studies indicated pancreatitis was still present. Twenty-three days after the second operation, a barium swallow study showed the stoma completely obstructed. Electrolyte values and total serum proteins were within normal limits. The abdomen was opened again and it was observed that dense adhesions about the stoma were causing complete obstruction of the efferent loop of the jejunum distal to the anastomosis. The anastomosis was

undone and a re-resection with an anterior Hofmeister gastrojejunostomy was performed. The patient made uneventful recovery.

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REFERENCES

1. Allen, A. W., and Donaldson, G.: Jejunostomy for decompression of the postoperative stomach, *Surg.*, 15:565, April 1944.
2. Cole, W. H.: Discussion of references 1 and 9.
3. Colp, R., and Weinstein, V.: Postoperative complications following subtotal gastrectomy for peptic ulcer, *Surg. Clin. of No. Amer.*, page 383, April 1955.
4. Dragstedt, L. R.: Personal communication.
5. Hoag, C. L., and Saunders, J. B.: Obstruction following gastroenterostomy or subtotal resection of the stomach: Treatment by jejunoplasty, *A.M.A. Arch. Surg.*, 42:259, Feb. 1941.
6. Prohaska, J., Govostis, M., and Kisteens, A.: Mechanism of the efferent stoma dysfunction following subtotal gastrectomy, *A.M.A. Arch. Surg.*, 68:491, April 1954.
7. Roberts, J.: Personal communication.
8. Sachs, A. E.: Treatment of postgastrectomy obstructed exit stoma, *A.M.A. Arch. Surg.*, 70:443, March 1955.
9. Sawyer, K. C., and Spencer, J. R.: Management of three stomal complications following subtotal gastrectomy, *A.M.A. Arch. Surg.*, 68:500, April 1954.
10. Storer, E. H., Woodward, E. R., and Dragstedt, L. R.: The effect of vagotomy and antrum resection on the Mann-Williamson ulcer, *Surg.*, 27:526, April 1950.



[Special Article]

Personal Injury Litigation

The Duties, Privileges and Responsibilities of Physicians

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PART II*

SUBDIVISION 4 of Section 1881 of our Code of Civil Procedure provides generally that a licensed physician or surgeon cannot, without the consent of his patient, be examined in a civil action as to any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient. This means that the patient has the *privilege* to forbid the physician's disclosure of such information.

There are several exceptions stated in the law, among them being where, after the death of the patient, his mental capacity to act is made an issue; in a lawsuit in actions for wrongful death; and "where any person brings an action to recover damages for personal injuries, such action shall be deemed to constitute a consent by the person bringing such action that any physician who has prescribed for or treated said person and whose testimony is material in said action shall testify."

It can be readily seen, therefore, that only in certain legal actions after the death of the patient, and in actions involving personal injury to the patient, is the privilege between physician and patient waived. In all other actions, except criminal cases where there is no privilege, the confidence of the patient must be preserved inviolate. The privilege exists even though the physician be employed and compensated by a third party—by a company for which the patient works, for example, or by a compensation insurance carrier. The patient himself may, of course, waive the privilege, either expressly or by his conduct, as where he permits the physician to prescribe for or treat him in the presence of third parties. Persons assisting the physician, such as nurses, are not such third parties.

It should be noted that the statute does not permit the release of such information merely because the patient has met with an accident or has presented a claim for damages for personal injuries. A lawsuit must first have been commenced. Nor is the infor-

mation releaseable merely because the opposing attorney has served a subpoena upon the doctor. The information can be divulged over objection only through testimony given at a trial, deposition or other judicial hearing, and where attorneys for all parties are given opportunity to be present.

It must also be remembered that the patient's adversary may compel a physician to testify by subpoena only where his knowledge of the patient was acquired for the purpose of enabling him "to prescribe for or to treat the patient." Thus, where a doctor is employed by an attorney only to make a report to him or to give testimony in the case (and the doctor gives no medical advice, care or treatment) he cannot be compelled to divulge his findings over the objection of the party who employed him. This is for the reason that the physician is then the agent of the attorney for communication of medical facts from the client to the attorney, and the "attorney-client" privilege is then applicable to prevent disclosure.⁵

A California Appellate Court recently held that it was improper for an attorney to question the physician as to the names of other patients whom he may have treated for similar symptoms or complaints. The court held that such a disclosure would violate the confidential relationship between the physician and such other patients. It is well to remember this rule should an adversary lawyer seek on cross-examination to pursue inquiry respecting other patients having similar injuries.⁶

In summarizing the subject of privilege, it may be said that a physician should make it an invariable rule not to divulge information concerning his patient to any third party without having first received his patient's written authorization so to do. Moreover, without the written consent of his patient, he must not disclose such information unless compelled by subpoena to give testimony under oath in a judicial proceeding. No privilege exists in crimi-

⁵City and County of San Francisco v. Superior Court, 37 Cal. (2d) 227.

⁶Costa v. Regents of University of California, 116 Cal. App. (2d) 445.

*This is Part II of an article in two parts. Part I appeared in the December, 1955, issue of CALIFORNIA MEDICINE.

nal cases, in civil cases involving deceased patients whose mental competency is in issue, or in suits for personal injury or wrongful death. The attorney-client privilege will prevent disclosure of the physician's findings where he has been employed by the attorney only for the purposes of the suit.

Witness Fees of Physicians Attending Depositions or Trials

The right of the physician to determine his own scale of fees for his services has always been jealously guarded by the profession. It has been successfully argued in some states that a physician's professional opinion, acquired after years of costly schooling and experience, may not be extracted from him without payment of an expert's fee. But this is the minority view, and there is as yet no clear decision in the California courts on this problem.⁷ If the question is ever squarely presented, however, it is probable that they will compel a physician to divulge his findings and to express his opinion as to diagnosis and prognosis, without the payment of an expert's fee, provided that he is not required to pursue a further examination or study in order to express such opinion.

While there is no known standard agreed upon by the physicians of this community, the pattern of charges submitted to the attorneys, both for the injured party and for insurance companies defending an action, has been fairly consistent. A physician who specializes usually charges more for his consultation, written report and court testimony. In San Francisco, general practitioners charge from \$100 to \$150 for each day, or part thereof, in attendance at court; \$25 to \$75 for attendance at a meeting for deposition, and from \$10 to \$25 for each physical examination and report. The fees of specialists vary from 25 per cent to 200 per cent higher. The fees usually charged by the general practitioner in outlying communities may be 25 per cent to 50 per cent less. (These fees are set down here, not as a guide to follow, but simply to show what charges are likely to be considered "reasonable" by the courts.)

Lawyers should be, and usually are, eager to pay the physician promptly for reasonable medico-legal fees. Some physicians have suffered in their experiences with some attorneys, and have adopted the practice of requiring payment of their fees in advance, particularly for court appearances. While this has the commendable ring of certainty, it does not flatter the legal profession nor the lawyer who receives the physician's ultimatum.

Acceptance of contingent medical fees or bonuses for medicolegal services is, of course, to be

denounced. This cheapens both professions, and deprives the physician of that complete objectivity which should be constantly his. Furthermore, if such a fact were to be brought to light in a trial, it would immediately subject the physician's testimony to deep suspicion.

Moreover, an arrangement which makes the compensation of a witness dependent upon the outcome of the case is contrary to public policy.⁸ It is also a breach of ethics for an attorney to employ any witness for a fee contingent upon the outcome of the case. At least one case is on record in which a lawyer was disbarred for entering into a contingent fee arrangement with a witness.⁹

Occasionally a situation may occur where the lawyer promises but fails to pay proper medicolegal fees. The organized bar does not have a public service committee, as do medical societies, before which the physician might apply for relief against a lawyer. Of course, if there has been practiced any semblance of deceit such as would amount to a moral wrong, disciplinary action against the lawyer may be initiated before the State Bar. But the bar's disciplinary machinery is intended solely to police its members for acts of moral culpability. Its offices may not be used as an agency for the collection of bills or to settle civil disputes.

While the attorney is under no legal obligation to "protect" the physician for fees incurred by the patient for care and treatment, he should, in most cases, be able to induce his client to pay for the services. The personal injury lawyer must frequently interrupt the physician's time and thus affect his pocketbook. When the physician is cooperative, it is only right that the attorney should reciprocate in kind. He should endeavor, consistent with his duty to the client, to see the physician paid ultimately for all legitimate unpaid medical fees. Insurance company checks or drafts paid in settlement of personal injury cases are invariably made payable jointly to the patient and to his attorney, and after endorsement, are customarily deposited in the attorney's trustee account. From this fund are disbursed the moneys payable to the client, to the attorney for his fees and reimbursed costs, and to such other persons as the client may direct. With the client's permission, the attorney may pay the physician directly from this fund.

Adequate and Accurate Records of Patients in Personal Injury Cases

The majority of physicians must plead guilty to the charge of keeping an absolute minimum of medical records. These records in most cases probably are adequate to cover the essentials of medical care

⁷City and County of San Francisco v. Superior Court, 37 Cal. (2d) 227; People v. Conte, 17 Cal. App. 771, 783-784.

⁸16 A.L.R. 1457; 12 Am. Jur., Sec. 188.

⁹Matter of Shapiro, 144 App. Div. (N.Y.) 1.

and treatment but, in many instances, they fall far short of the records reasonably required in medico-legal cases. When called to treat an injured patient, the doctor should be on notice that he may be later called upon to refresh his recollection as to many incidents or symptoms seemingly insignificant at the time of their appearance. Many serious disabilities, and occasionally death, may occur months and years after and as a result of an earlier injury. Without an accurate history and the careful recording of objective signs and subjective symptoms, a grave injustice can result to one side or the other in a subsequent lawsuit.

Moreover, a physician responsible for hospitalizing a patient should exercise a close supervision over the accuracy and fullness of the hospital histories, medical "impressions," diagnoses, and nurses' entries and charts. An occasional scrutiny by the doctor of all entries will frequently save later embarrassment in having to explain an erroneous or incomplete entry made by an intern, nurse or other person, that may be directly contrary to the physician's testimony at the time of trial. Hospital records, as well as the physician's personal records, are now being subpoenaed for inspection by adversary counsel with increasing frequency. They are deserving of much greater care in their preparation.

It sometimes develops, as has been said, that entries in medical records are erroneous or otherwise embarrassing. It may occur to the physician or to the inexperienced lawyer, that he may "correct" the record by erasure or other obliteration of the entry so as to make the record "speak the truth." Such changes should be avoided because, upon production of the records in court, an astute attorney would customarily examine the record and would note the erasure. He would then inquire as to when the change was made, as to who was present at the time, and as to the motivation inspiring it. A charge of tampering with intent to falsify the record may be difficult to overcome. If it is ever advisable to "correct" the record, it should never be done by erasure or obliteration, but only in such manner as to reveal the original writing and to indicate that the error was corrected at a later time.

When required to give testimony at a judicial hearing, a physician normally should take with him all of his medical file pertaining to the case, including x-ray films and laboratory and other reports. It is not necessary that he secure or take with him hospital records, or reports of other physicians, unless specifically requested to do so by his patient's attorney. There have been many occasions when a physician, either because of poor records, embarrassing entries or wishful thinking, has appeared in court without the records and the court has ordered him to return (sometimes from distant

communities) with his records at the next session of the court. By the time the records are produced, their absence may have assumed magnified importance. Consequently, if the records when produced are shown to differ from the earlier testimony, the physician and the patient may be looked upon as conspiring charlatans.

An experienced lawyer will never overlook consulting with the physician before the physician's appearance in court. He will also personally review the records to make sure that communications that are not properly a part of the medical file are removed, and that any discrepancies are noted and explained so that neither the physician nor the lawyer will be surprised in the courtroom.

When taking histories, physicians are sometimes careless in transcribing accurately the statements made by the patient, or other informant, as to the manner in which the accident occurred. This is because the physician is much less interested in the legal implications. But the court or jury will always attach great importance to the spontaneous admissions made by a person soon after the occurrence. It generally will make little difference to the physician whether the patient "tripped" or "slipped" while going down stairs, but the accuracy of the expression made can mean the difference to your patient between winning and losing his lawsuit. There can of course be no criticism if the truth is recorded, but the frequency of careless error on the part of the recorder suggests that greater care should be exercised in recording histories, particularly in a case that has medicolegal implications.

An interesting example of cases in which a physician's entry in a hospital record went far to bring about the conviction of a defendant occurred in a recent criminal case.¹⁰ An Army captain hospitalized at Letterman Army Hospital for epilepsy was arrested for an attempted armed robbery of a taxi driver. His defense, supported by psychiatric testimony, was that he had no memory of the occurrence, and was not responsible for his act because he had had an epileptic "blackout." The prosecution introduced in evidence records of Letterman Hospital containing an entry by a neurologist as follows:

"... This patient is still being investigated in connection with an assault upon a taxi driver. He has been told by a civilian neurologist that he might have a fugue state of which I am personally very skeptical. I believe that the patient may be endeavoring to manipulate his way into the hospital in order to strengthen his defense..."

The physician who wrote that note was not called to testify, but no amount of argument could remove the harmful effect of that entry.

¹⁰*People v. Gargol*, 122 Cal. App. (2d) 281.

Preparation for and Recommended Conduct During the Presentation of Testimony

The following suggestions should be of help to a physician unfamiliar with the courts who is called to testify:

Be thoroughly familiar with his patient's background, and of the facts which give support to his professional opinion. Adequate preparation will instill self-confidence and allay the apprehension of cross-examination.

Spend enough time with the patient's attorney in review of the technical material involved so that each may appreciate the problem of the other and anticipate the questions to be asked and the answers to be given.

Remember to show the patient's attorney all your records so that neither of you may be surprised at the trial. Do not neglect to take all medical memoranda with you to the courtroom, not only to fortify your memory if that is required, but so that you may not be sent back for it.

Refresh your recollection from texts, periodicals, anatomical charts, or other papers pertaining to the injury with which you are concerned. However, it is generally not advisable to refer to medical authorities in support of testimony, unless you are absolutely certain that the text, in its entirety, fully supports your position. Even then it may invite a quarrel over its interpretation.

Endeavor to withstand the persuasive tug and pull of the attorneys, even that of the attorney who is calling you as his witness. Remember that an advocate will zealously strive to "put his client's best foot forward," while the physician must always remain an objective man of science. Do not play the part of an advocate, whether you are testifying for the plaintiff or for the defendant. Forget, for the time being, the party by whom you are called, and strive to rid yourself of any bias or prejudice that may creep into your thinking.

Speak in a conversational tone, but loudly enough so that you may be heard and understood by all persons in the courtroom, even to its farthest part. Do not volunteer answers, but wait for the question to be asked of you. If the attorney has forgotten to touch upon an issue which to you may seem important, call his attention to it at the recess, or when leaving the witness chair. If it is important enough, he will recall you for that purpose.

Avoid putting your hands to your face while testifying. Moving the hands about the mouth makes the witness appear uneasy, it obstructs the normal

carrying quality of the voice, and it imparts a poor impression to the jury.

Weigh each question carefully. If you do not understand the question, ask that it be clarified or repeated. If you are not given time enough in which to answer a question, allow the attorney who has called you as a witness an opportunity to make proper objection to the court. If this attorney does not do so after a reasonable time, you may suggest to the court that you are unable to understand the question or to answer it adequately.

Above all, do not become embroiled in a dispute with the examining attorney. This may be the very reaction that he desires to provoke. A witness who is flustered, angry or otherwise swayed by emotion, is usually an unhappy target for an experienced attorney. For the same reason, do not indulge in matching wits with the attorney, or try to appear clever in debate. The jurors do not expect anything but self-control and dignity from a man of medicine, and will be quick to frown upon either the lawyer or the physician who is rude or insulting.

Try to avoid the use of medical terms that are unfamiliar to the layman. If you do so inadvertently, be quick to explain the meaning of the word in terms that the average person can readily understand.

If you are asked about the medicolegal fees that you have received, or expect to receive, state them at once, if they are known to you. If they are not known, state that you expect to receive a fair fee for your time away from your regular practice and for any expenses you are put to in attending the trial.

If you are asked if you discussed the case with any person before coming to the trial, do not assume that you have done wrong to discuss the case, but answer the question fully and frankly. There is nothing improper about pretrial consultations with the attorney, despite the common misapprehension that an affirmative answer connotes some impropriety.

Remember that conflicts can never be avoided in any field of skill or learning. Particularly is this true among members of the medical profession. Do not feel that you must reconcile your testimony with the views of other medical men, but be honest, fair and true to yourself.

If you will adequately prepare yourself in the subject matter of the inquiry and reasonably observe these admonitions, you should have no cause for apprehension in making your contribution, happily and effectively, to the achievement of justice.

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CASE REPORTS

Urinary Calculus Formation in the Vagina From Vesicovaginal Fistula

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THERE APPEARS to be no record in urological texts or in current periodicals of urinary calculus formation in the vagina at the site of vesicovaginal fistula. In the case here reported a vaginal calculus was noted incidentally during routine pelvic examination of a patient being treated for tetany associated with hypoparathyroidism and hypothyroidism (after thyroidectomy). This case is further remarkable in that an extensively calcified urinary stone developed in a patient with two hormonal deficiency states that cause diminished excretion of calcium.

REPORT OF A CASE

A 48-year-old woman, first examined May 12, 1952, complained of generalized numbness and had severe carpal spasms. An incidental complaint was of leakage of urine from the vagina for five years, requiring the constant wearing of a menstrual pad to protect the clothing. The patient also was under treatment for longstanding congestive heart failure from rheumatic heart disease.

At 17 years of age the patient had been told she had a leaky heart valve resulting from rheumatic fever. During adolescence the thyroid gland became enlarged. At age 32 the enlarged thyroid gland was removed because it was said to be causing cardiac irregularity and damage, but the patient recalled no symptoms of hypermetabolism and it may have been that the cardiac symptoms were associated with the rheumatic heart disease. In 1947, when the patient was 43 years of age, hysterectomy was performed owing to prolonged menstrual bleeding, and fibroid tumors were reportedly removed. This resulted in a vesicovaginal fistula which leaked urine continuously. Two months later an unsuccessful attempt was made to close the defect vaginally. For the year preceding the instance herein reported, the patient had been troubled with frequent diarrhea of four to six liquid stools daily. This had begun at the time the patient began taking digitoxin in a dosage of 0.2 to 0.3 mg. daily. Tingling in the extremities and cramping of the toes had been present for one week and typical carpal spasms for one day. No symptoms of

hypothyroidism could be elicited except frequent drowsiness during the day even after nine hours' sleep at night.

The patient was thin and poorly developed and looked older than her stated age. The temperature was 98.6°F., the pulse rate 72 and irregular, respirations 32, and blood pressure 110/70 mm. of mercury. Extremely apprehensive, the patient was breathing vigorously in a manner suggesting hyperventilation, and the classical deformity of severe tetanic carpal spasms was present. A few hours later when the symptoms had been relieved with rebreathing from a paper bag and intravenous administration of calcium, the carpal spasms could be produced within 30 seconds by placing a tourniquet about the arm. Except for moist palms, the skin was excessively dry. The lungs were clear to percussion and auscultation. There was a faint, rumbling, apical systolic murmur and a very faint early diastolic blow. The mitral first sound was snapping and relatively loud. The liver was not palpable, but the edge of the spleen, firm and sharp, was felt four fingerbreadths below the left costal border. On pelvic examination a hard obstacle was palpated in the mid-vagina. It was thought to be an old metal pessary. On inspection, however, it was observed to be a calculus approximately 35 mm. in diameter which was held in place by a neck extending through a fistulous tract into the bladder (Figure 1). This neck was slightly enlarged on the bladder side of the fistula and considerable traction was necessary to dislodge it. Following removal of the calculus, there was a clean round hole, approximately the diameter of a lead pencil, in the anterior wall of the vagina about midway between the vaginal orifice and the apex of the vaginal vault. After removal of the calculus the patient complained of a much greater flow of urine through the vagina than previously.

Upon fluoroscopic examination, pronounced general enlargement of the heart was noted, particularly the left auricle and ventricle, consistent with rheumatic mitral valvular disease. An electrocardiogram showed auricular fibrillation at a rate of about 80 per minute, frequent premature ventricular beats, and probable digitalis effect. Hemoglobin content was 15.5 gm. per 100 cc. of blood. Erythrocytes numbered 5.3 million per cu. mm. and leukocytes 8,300. The urine gave acid reaction; the reaction for albumin was 1 plus, and it contained no sugar.

Submitted April 1, 1955.



Figure 1.—Urinary calculus removed from vagina showing configuration, including neck which protruded through fistula to the bladder. Broken right border of calculus is area where fragment was removed for chemical analysis.

There were 50 to 60 pus cells per high powered field, rare red cells and a few epithelial cells. To determine, if possible, the manner of calculus formation, a search was made for records of urine analysis done on other occasions, and three reports were found. On one occasion the pH was 6.0, on another 7.0, and on the third the urine was alkaline. An abnormal number of pus cells was noted all three times. *Pseudomonas aeruginosa* (predominantly) and *E. coli* grew on a culture of urine. The blood contained 2.8 gamma of protein-bound iodine per 100 ml. and the serum calcium was 5.7 mg. per 100 ml.

The vaginal calculus was sent to Dr. C. S. Small of the Department of Pathology, College of Medical Evangelists, Loma Linda. He reported: "The stone is roughly rectangular, 37 x 32 mm., and 16 mm. thick, with a 9 x 11 x 7 mm. knob projecting from one flat surface. The shell of the stone is about 2 mm. thick, light gray, slightly nodular, and about as hard as plaster. The core is softer, chalky, pale brown and slightly fibrous. The whole weighs 10.85

grams." Chemical analysis of the shell and the core of the calculus were the same, and showed the presence of calcium and ammonium phosphates. The analysis was negative for urate, oxalate, carbonate, magnesium, and cystine. An x-ray film of the calculus showed that it was replete with calcium laid down along a nonopaque matrix. There was no evidence of a foreign body nidus.

The patient's thyroid and parathyroid deficiencies were satisfactorily treated, and chronic diarrhea was corrected by reducing the digitoxin dosage. She was referred to a urologist for surgical repair of the vesicovaginal fistula. Excretory urograms made at that time revealed no calculi or other abnormalities of the upper urinary tract. A suprapubic repair was attempted, but the floor of the bladder in the vicinity of the fistula was friable, thickened and practically bloodless so that it was impossible to undermine a flap with which to close the floor of the bladder. Closure was then attempted by placing sutures in the bladder, at right angles to those which were placed in the vagina, but urine continued to leak through the vagina. No vesical calcifications were found during this procedure.

The patient returned to the care of the physician who had been treating her before the development of the acute symptoms previously described. After about a year she became acutely ill again and was referred to another internist. A diagnosis was made at that time of severe congestive heart failure from rheumatic heart disease, with secondary cardiac cirrhosis and splenomegaly and pronounced digitalis intoxication. Urine was still leaking from the vagina. Two days later massive gastric hemorrhage occurred suddenly and the patient died. Upon post-mortem examination the clinical diagnosis of rheumatic mitral valve disease with secondary hepatomegaly and splenomegaly was confirmed. There was no evidence of esophageal varix, but freshly bleeding erosions were noted in a large portion of the stomach.

COMMENT

In this case a vaginal calculus of which the patient was totally unaware formed as a result of vesicovaginal fistula of five years' duration. The calculus was composed of calcium and ammonium phosphate by chemical analysis, and an x-ray film showed heavy calcification. The calcification developed in spite of hypoparathyroidism and hypothyroidism that resulted from thyroidectomy 16 years previously, and also despite chronic diarrhea from digitalis intoxication, all of which tend to decrease urinary calcium.

The causes of urinary calculus formation are not clearly understood and often appear to be complex. However, certain obvious factors, including stasis, infection and metabolic abnormalities, are frequently associated with the condition, and it is of interest to relate them to this unusual location for calculus formation.

Stasis can certainly be considered as a factor in the formation of the calculus in this case when one considers the slow continuous trickle of urine through the fistula and the vagina as compared to the intermittent forceful ejection of urine from the bladder and through the urethra. The absence of calculi elsewhere in the urinary tract points to the importance of local mechanical factors at the site of stone formation in the fistula.

The presence of infection was indicated by the presence of pus cells on the several occasions when the urine was examined, and by the growth of *Pseudomonas aeruginosa* and *E. coli* on the one occasion when a culture of the urine was made. The predominantly alkaline reaction of the urine in this case may be attributed to the pseudomonas infection, since these bacteria are considered to be urea-splitting organisms which change the normally acid condition of the urine.² Alkaline urine is inclined to cause phosphate stones, and phosphatic deposits are known to quickly coat catheters left in the bladder if the urine is alkaline. Since the deposition of material forming the calculus in this case occurred principally in the vagina, the subject of vaginal pH should be considered. Unfortunately, no observations in this regard were made in the present case. However, it is well known that the normal vaginal reaction is acid, with a pH of 4 and 5, although it is said that bacterial reaction may raise it to the neutral point of 7.⁴ This change to a neutral reaction is most likely to occur after the menopause, and the patient in the present case was postmenopausal. This change is explained by the lack of estrogen, which leads to a glycogen deficiency in the vaginal epithelium, which in turn results in a lack of normal lactic acid protection. In this case it would seem reasonable to suppose that the pH of the vagina was probably near neutral and did not significantly affect the alkaline reaction of the urine which leaked steadily through it.

Calculus formation may be associated with endocrine and metabolic disorders. It is well known that hyperparathyroidism with its hypercalcemia and resultant increased calcium excretion may produce urinary calculi. It appears contradictory that in this case, with definite hypocalcemia and presumably subnormal urinary calcium excretion, a heavily calcified stone should develop. The hypothyroidism which was also present makes the development of a calcified stone even more unlikely, inasmuch as this condition tends to decrease calcium mobilization and excretion. (In untreated myxedema diminished urinary calcium excretion has been clearly demonstrated.⁷) Still another factor which would favor subnormal urinary calcium excretion is the presence of chronic diarrhea, which may interfere with normal absorption of calcium from the bowel and also accelerates excretion through the bowel. Since the age of the vaginal calculus in the present case is unknown and it is possible that it could have been forming for several years, it may be that the calcium deposition in the

calculus occurred before any of these hypocalcemic factors were active.

Inasmuch as the vaginal calculus extended through the fistula and a short distance into the bladder, where the expanded neck had formed a rather secure anchor, it was in part also a bladder calculus. Bladder calculus is generally considered to be almost exclusively a disease of males, and when it does rarely occur in women the calculus either forms about a foreign body or in a vesical diverticulum. Crenshaw,³ in reporting upon a series of 606 patients with bladder stone, noted that 4.78 per cent were women. Joly⁵ listed three large series of cases of vesical stone, gathered from various parts of the world, in which only 2 per cent or less occurred in females. Only one specific reference to vesical stone formation due to vesicovaginal fistula was mentioned. However, these series were collected in areas or at a time when pelvic operations were relatively infrequent. (Most such fistulae develop as a complication of hysterectomy.) Belt¹ said that in his experience in dealing with vesicovaginal fistula, stone in the bladder is common and calcification frequently is found coating the bladder wall. He attributed the frequency of calcification to the presence of air in the bladder, which frequently enters through the fistula when the patient lies down and relaxes. Air is thought to help in the precipitation of the urinary constituents which produce calculi. Maxson⁶ observed a case in which many wire sutures protruding from the vaginal wall at the site of unsuccessful repair of a urinary fistula became coated with calcareous material. However, the occurrence of a large, discrete, urinary stone forming primarily in the vagina, as in the case here reported, appears to be unique. Most women would probably not tolerate the chronic irritation of a slowly developing calcareous mass in the vagina, and it is amazing that the patient in the present case was totally unaware of its presence.

SUMMARY

A case of urinary calculus formation in the vagina in association with a vesicovaginal fistula is reported. No previous instances of occurrence could be found in the literature. The composition and manner of formation of the calculus are considered.

219 Cajon Street, Redlands.

REFERENCES

1. Belt, E.: Personal Communication, Feb. 1955.
2. Chute, R. and Suby, H. I.: Prevalence and importance of urea splitting bacterial infection of the urinary tract in the formation of calculi, *J. Urol.*, 44:590, 1940.
3. Crenshaw, J. L.: Vesical calculus, *J.A.M.A.*, 77:104, Oct. 1921.
4. Curtis, C. H., and Hoffman, J. W.: *A Textbook of Gynecology*, W. B. Saunders Co., Philadelphia, 1950, page 95.
5. Joly, J. S.: *Stone and Calculous Disease of the Urinary Tract*. The C. V. Mosby Co., St. Louis, Mo., 1929, page 471.
6. Maxson, E. S.: Personal Communication, Feb. 1955.
7. Robertson, J. D.: Calcium and phosphorous excretion in thyrotoxicosis and myxedema, *The Lancet*, 1942, page 674.

Disseminated Coccidioidomycosis

Combined Estrogen-Androgen-Trypsin Therapy

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DISSEMINATED COCCIDIOIDOMYCOSIS has long been known as a disease with a very high proportion of fatal cases. Before the identification of the mild acute form of the disease, it was thought that almost all cases terminated fatally. Pronounced susceptibility to dissemination in the colored races is well documented. According to Jillson,⁴ in Caucasians dissemination occurs in one of 500 of the acute cases; in Mexicans, in one of 145; in Negroes, in one of 36; and in Filipinos, in one of three. Although data reported by various observers as to recovery from disseminated coccidioidomycosis are not in full agreement, the rates reported are around ten per cent.

Attempts to arrive at specific therapy have been disappointing. Results with stilbamidine and its derivatives have been reported enthusiastically in a few instances, but no wide success with them has been noted. Ethyl vanillate appeared valuable in a few cases,¹ but it is difficult to control and the margin of safety is narrow.

The use of sex hormone steroids was suggested by Reiss⁸ after he carried out studies in vitro showing that diethylstilbestrol and some other estrogens were effectively fungistatic and genestatic against several pathogenic fungi. Diethylstilbestrol treatment alone was used unsuccessfully in two reported cases,⁶ but methyltestosterone was successfully combined with sulfa drugs in one case of disseminated coccidioidomycosis.⁵

Reported herein is a case of disseminated coccidioidomycosis with monoarticular involvement, in which prolonged combined estrogen-androgen therapy was used. Clinical remission and healing of the involved joint occurred and was maintained.

REPORT OF A CASE

A 46-year-old Filipino-American shipyard worker injured his right knee on October 1, 1953, when he fell into a winch. A week later, the knee began to swell and became tender and painful. Aspiration, immobilization and physical therapy were given to the patient both in and out of the hospital with little success from October 20, 1953, to February 5, 1954, at which time he was readmitted for further study.

Upon physical examination it was noted that the right knee was warm, erythematous, tender, fluctuant and painful on motion. The body weight was 127 pounds. The patient said his normal weight was 145 pounds.

Moderate anemia, slight leukocytosis, and accelerated sedimentation rate were noted on admission. No abnormalities were noted in x-ray films of the chest and of bones. Results of blood chemical determinations and urinalysis were normal. There was

positive reaction to a skin test with coccidioidin in dilution of 1:100. When a preliminary report of biopsies of synovia indicated tuberculous arthritis, antituberculosis treatment was started. Further study of specimens, as well as growth of coccidioides from the cultures of synovial fluid, confirmed the true diagnosis. Confirmation of dissemination was obtained through persistently positive precipitin and complement fixation tests—four plus in 1:64 dilution.

Prior to the confirmation of this diagnosis in May of 1954, the patient was treated with general supportive measures, various antibiotics and general rest with immobilization of the joint for three months. During this period the patient was febrile and his condition deteriorated. Chloroquine was given orally from May 27, 1954, to June 25, 1954, in dosage ranging from 2.0 gm. per day initially to 0.625 gm. per day. The dosage was decreased and the drug eventually was discontinued because of persistent nausea. On the latter date intramuscular administration of trypsin was started with 2.5 mg. three times a day. The dose was increased gradually to 5.0 mg. three times a day, then tapered gradually to a maintenance dose of 2.5 mg. twice a week. The previous months of illness, biopsy, incision and drainage of the involved knee had left multiple sinuses draining thick, foul material. During the chloroquine therapy the material draining from the sinuses decreased in amount, and during the trypsin therapy it changed to a thinner, more serous fluid. On July 6, 1954, testosterone cyclopentopropionate, 200 mg. intramuscularly twice a week, was started. On July 13 ethinyl estradiol by mouth, 0.02 mg., three times a day, was added. These were continued with maintenance trypsin therapy until September 20, when ethinyl estradiol and trypsin were discontinued. Testosterone was continued through November 15, when the patient was discharged to outpatient status. During the period of treatment there was a steady increase in body weight, decrease in leukocytosis, decrease in sedimentation rate, increase in hemoglobin and hematocrit, complete closure of the wounds about the knee, and dramatic restoration of general well-being. The patient was gradually brought from bedfast status, to wheelchair, then to crutches, and was discharged with a straight-leg, ischial weight-bearing brace. Progress was still being maintained with the patient on outpatient status and receiving only nutritional support at the time of this report. Serial determinations of complement fixation remained positive (four plus) in the 1:64 dilution.

COMMENT

The various agents used in this case were chosen for several reasons. Chloroquine was used on the strength of the previous encouraging reports on use of the drug in deep mycotic invasion,⁷ but it was discontinued because of nausea. In retrospect, the recovery of the patient seemed to start just before chloroquine was discontinued. A longer trial of the

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Submitted July 16, 1955.

drug in subsequent cases would seem indicated. Parenteral administration of trypsin was carried out on the supposition that it might decrease the viscosity of the infected material and thus promote drainage and also allow the therapeutic agents to penetrate into the involved tissue. The estrogen-androgen combination was used for the fungistatic effect^{5,6,8} as well as for the anabolic properties those hormones possess.

Although no conclusion is drawn from this one case, it is felt therapy of this type deserves further consideration in the treatment of coccidioidomycosis and other deep mycotic diseases.

SUMMARY

In a case of disseminated coccidioidomycosis with monoarticular involvement, full remission of symptoms and signs of local and widespread involvement occurred coincident with combined estrogen-androgen-trypsin therapy.

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REFERENCES

1. Fiese, M. J., et al: Disseminated coccidioidomycosis, *Calif. Med.*, 80:349-356, May 1954.
2. Gephardt, M. C., et al: Treatment of disseminated coccidioidomycosis with stilbamidine, *J. Okla. M. Assn.*, 47:55-58, Feb. 1954.
3. Gordon, L. E., et al: Sensitivity of *coccidioides immitis* to 2-hydroxystilbamidine and the failure of the drug in the treatment of experimental coccidioidomycosis, *J. of Lab. and Clin. Med.*, 43:942-945, June 1954.
4. Jillson, O. F.: Mycology, a review, *New Eng. J. of Med.*, 249:13-14, 1953.
5. Lamb, J.: Combined therapy of histoplasmosis and coccidioidomycosis-methyltestosterone and sulfas, *Arch. of Derm. and Syph.*, 70:695-712, Dec. 1954.
6. Piper, Wm. N.: Two treatment failures using diethylstilbestrol in treatment of coccidioidomycosis, *Arch. of Derm. and Syph.*, 70:809-812, Dec. 1954.
7. Prior, J. A.: Experiences with histoplasmosis, *Ann. of Int. Med.*, 40:221-225, 1954.
8. Reiss, F.: Steroid hormones; their fungistatic and genestatic effect on pathogenic fungi, *Arch. of Derm. and Syph.*, 59:405-413, April 1949.

Anaphylactoid Reaction to Intramuscular Tetracycline Hydrochloride

Report of a Case

ARTHUR SAKAMOTO, M.D., South Laguna

SO FAR AS COULD be determined, there had been, until the present case, no reports of reactions of a major type to intramuscular tetracycline hydrochloride.

A 43-year-old gardener was first observed May 10, 1955, with swelling of the left cheek that had begun about seven days previously, following a bite by an insect (possibly a spider, the patient thought). The swelling increased gradually, the patient said, and he had applied hot soaks once or twice.

Upon examination a swelling on the left cheek—a firm lump about two inches in diameter lying beneath the subcutaneous tissue and anterior to the parotid gland—was noted. Surrounding it was an erythematous area about three inches in diameter. The swollen area was only moderately tender. On close inspection a small area of grayish skin with a punctate depression in the center was noted. Lymph nodes both anterior and posterior to the lobe of the ear were considerably enlarged, and less so down the anterior cervical chain. The enlarged nodes were slightly tender.

A year previously the patient had received injections of procaine penicillin and streptomycin and had been given erythromycin, penicillin (Bicillin®) and sulfonamides by mouth for a severe upper respiratory tract infection, without reaction.

A diagnosis of insect bite with secondary infection was made. The probability of *Staphylococcus* in-

vasion secondary to the mild skin necrosis was considered and 100 mg. of tetracycline hydrochloride mixed with distilled water was injected into the gluteal muscle after the usual attempt at aspiration was made. The patient complained of severe pain upon injection, and afterward said that he could feel the pain travel throughout his body. He immediately felt slightly faint and in less than 20 seconds was unconscious. He was placed on an examining table. No heart beat could be heard nor pulse felt. The breathing was gasping. A blood pressure cuff was placed on the patient's arm, but tonic convulsion occurred before it could be inflated, and clonic convulsion swiftly followed. In a few seconds the patient struggled to get off the table, shouting, "Let me out of here." After another few seconds he regained consciousness and asked what had happened. The blood pressure then was 130/80 mm. of mercury. In the next half hour the systolic pressure dropped to 110 and the patient complained of increasing weakness, lethargy and nausea. Epinephrine and mephentermine were given subcutaneously and the blood pressure rose moderately. Epinephrine was given again when the pressure began dropping about an hour later. After about three hours from the time of injection of tetracycline hydrochloride the patient felt strong enough to walk out of the office, severe nausea having been relieved meanwhile by moderate emesis of the previous meal.

The next day the patient felt slightly weak but by the following day he was able to return to his usual occupation as gardener. Later a moderately large amount of caseous material drained from the swollen area on the cheek, with immediate relief of swelling and discomfort.

Submitted June 13, 1955.

A few weeks later a skin test for procaine sensitivity was performed and an area of induration 8 mm. in diameter with erythema 10 mm. in diameter developed.

The manufacturers (Pfizer Laboratories) of the tetracycline hydrochloride injected into the patient in this case examined a remaining portion of the material injected, as well as the contents of a vial from the same lot, and found no defect.¹

DISCUSSION

There are numerous reported cases of reaction to parenteral injection of penicillin. The present report of anaphylactoid reaction to the parenteral injection of another antibiotic, tetracycline hydrochloride, serves to illustrate the possibility of such a reaction to practically any parenteral medication, especially in the presence of procaine.

SUMMARY

A case in which anaphylactoid shock followed intramuscular injection of tetracycline hydrochloride in a procaine-sensitive patient is reported. It is believed to be the first report of such reaction to that antibiotic.

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REFERENCE

1. Dumas, Kenneth J., Pfizer Laboratories: Personal communication.

Mumps Meningoencephalitis

Report of an Unusual Case

DAVID M. ROZRAN, M.D., Los Angeles

THE COMPLICATIONS OF MUMPS in childhood are few and usually unimportant. In adolescence, however, they are occasionally severe. Meningitis is not a rare complication, and meningeal symptoms occasionally appear before or in the absence of parotid swelling, which may make the diagnosis obscure or difficult to establish except in the presence of confirmatory laboratory data. This complication more often occurs during epidemics, and associated with it are sudden high fever, headache, nuchal rigidity and Kernig's sign—these symptoms usually appearing near the end of the first week. Mental changes and delirium may be evident from the onset. The spinal fluid is under increased pressure but usually clear, with a predominance of lymphocytes present and a normal sugar content. Most patients recover spontaneously and death is rare. Symptoms may be relieved by lumbar puncture. Other treatment is symptomatic.

From the Service of Dr. A. G. Bower, Chief Physician, Communicable Disease Unit, Los Angeles County General Hospital, Los Angeles 33.

REPORT OF A CASE

The patient, a white boy 15 years of age, was admitted to the Communicable Disease Unit of the Los Angeles County General Hospital on May 7, 1952. He had been well until, two days before admission, he awoke in the morning with a throbbing frontal headache and a fever of 102° F. orally. There was associated bilateral orbital pain and vomiting. Neither the neck nor the back was stiff and there were no voice changes. The symptoms persisted and a physician was consulted. A lumbar tap was done. The fluid was clear and it contained 900 cells per cu. mm.—95 per cent lymphocytes. The patient was admitted to the hospital, where he rapidly grew worse. The past history was significant in that the boy had definitely had varicella and measles, but was not sure about mumps. The remaining history was not contributory.

Upon admittance the patient was observed to be uncomfortable but alert, and the oral temperature was 102° F. There was questionable redness at the openings of Stensen's ducts and a slight inflammation of the pharynx. The parotid and cervical nodes were not enlarged, and no nuchal, back or hamstring spasm was observed. The reflexes including the superficial were all present and physiological. The spinal fluid pressure was higher than normal and it contained 847 cells per cu. mm.—92 per cent lymphocytes. Results of qualitative tests for sugar and protein content were within normal limits. Leukocytes in the blood numbered 7,400 per cu. mm.—64 per cent polymorphonuclear cells.

The symptoms abated almost immediately following complete bed rest. The temperature was normal on the fourth hospital day and there were no complaints thereafter. Lumbar taps were done repeatedly, revealing pleocytosis in all instances. The fluid was always sterile and chemical constituents were within normal limits. Exhaustive laboratory diagnostic studies were made and a complement fixation test for mumps finally provided the diagnosis. A specimen of the patient's blood had been sent to the laboratory at the time of admittance and the report of "1:8 for mumps" was subsequently received with instructions to repeat the test in approximately ten days. On May 19, another specimen was sent to the laboratory and this time a report of "1:32—positive for mumps" was received. The patient was discharged on the twenty-first hospital day.

COMMENT

It has been shown, especially by Enders and Kane^{1,2} that during an attack of mumps a specific antibody appears in the serum which has the capacity to fix complement in the presence of an antigen derived from the parotid gland of a monkey previously inoculated with the virus. This antibody is usually demonstrable by the fourteenth day following onset. Therefore, the complement fixation test might be of value in differentiating mumps meningoencephalitis from other forms of acute aseptic

meningoencephalitis. As with other serologic methods, the results of this test in mumps may be regarded as conclusive only when two specimens of serum are examined at suitable intervals. The first specimen must be taken as soon as possible, since the antibody may appear very rapidly after appearance of symptoms. In many persons the test becomes positive five to seven days after onset, and in some cases even as early as the first or second day. Nearly always by the fourteenth day there will be high antibody titer. The antibody concentration usually begins to fall after six to eight weeks.

In addition to that of mumps, a variety of viruses (and possibly other agents) may give rise to this condition. Viruses known to be capable of causing it are those of mumps, herpes simplex, lymphocytic choriomeningitis, Western equine encephalitis, Japanese encephalitis, Russian encephalitis and poliomyelitis. Cerebral manifestations of infectious mononucleosis may also be classified under the term acute aseptic meningoencephalitis.

In spite of frequent involvement of the central nervous system, in mumps complete and uneventful recovery is the rule. Since fatalities are uncommon, investigative histologic study has not been inten-

sive. Apparently the fundamental lesion is a perivascular demyelination similar to that seen in other postinfectious encephalitides. As most cases are diagnosed clinically on the basis of a strong history of exposure to a person with the disease, the possibility of exposure should be carefully investigated in history-taking.

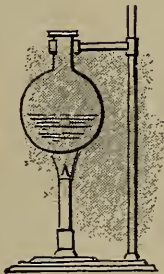
SUMMARY

A case of mumps meningoencephalitis without obvious parotid involvement, diagnosed by laboratory methods, is reported. Complement-fixing antibodies to the virus are found in the majority of patients with mumps and the complement fixation test is proving a practical method and sometimes, as in this case, the only way of diagnosing this contagious disease.

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REFERENCES

1. Enders, J. F.: Techniques of laboratory diagnosis, tests for susceptibility and experiments on specific prophylactics, *J. Pediat.*, 29:129, 1946.
2. Kane, L. W., and Enders, J. F.: Immunity in mumps. The complement fixation as an aid in diagnosis of mumps meningoencephalitis, *J. Exp. Med.*, 81:137, 1945.



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EDITORIAL

The Second Hundred

IF, AS IT has been said, "the first hundred years are the hardest," the California Medical Association may look forward to a period of greater relaxation this year.

In March the Association will have completed its first hundred years of existence and will enter its second century of service to the public and the medical profession. It is not amiss to draw a few parallels between 1856 medicine and 1956 medicine.

The earliest beginnings of the C.M.A. came about from a desire to separate the medical sheep from the goats. The unbridled medical schools of the middle nineteenth century were turning out so-called doctors at a rate which was deterred only by the inability of some candidates to pay the proprietary fees asked for the granting of diplomas.

To insure a standard of medical training which would assure the public of a reliable measuring device, some of the early California physicians got together and set up a medical society to which only those whose training was deemed adequate could be elected. This came about before the State of California had taken any action to license physicians under suitable standards.

Out of this early attempt to establish minimum standards came an increased zeal for better medical education. Medical society members achieved a badge of distinction which not only elevated their spirits but gave the people something to cleave to in evaluating the practitioners of the day.

From such humble beginnings has grown the second largest state medical association in the country today. From the scattered efforts of physicians to elevate their own standards, efforts which were fused into a statewide organization when facilities for communication became better, came a large and virile organization which today commands nationwide respect.

Scientifically, California medicine has kept pace with the rest of the nation and the world. It has

witnessed the striking advances which have made the past century the most important in scientific development in the history of the world to date.

Asepsis, antibiotics, hormones, serums, vaccines—each of these fields has been developed during the past century. Each has brought its own contribution to the medical armamentarium; each has helped control or wipe out diseases which formerly were fearsome, if not fatal.

Scarlet fever, diphtheria, measles, whooping cough, typhoid, syphilis and tuberculosis have been reduced to a control level which represents only a fraction of their former devastation.

At the same time, startling increases in morbidity and mortality rates for heart ailments, cancer and other conditions give warning that medicine may not relax in its constant struggle to stay ahead of human suffering. Whether some of these statistical increases come about from a true increase in incidence or from merely better means of diagnosis and identification is, in some cases, a moot question. However, modern diagnosis must be matched by modern therapy if the pattern of improved disease control is to be maintained and extended.

The fairest measure of medical progress in the 1856-1956 century may be found in the tables for average life expectancy. In round figures the average has risen from 40 years to 70.

In medical education, this same period has seen California rise from a position where it was totally dependent on in-migrating physicians from other states to the point where today the state boasts five approved medical schools whose graduates are welcomed throughout the country. Despite the aggregate size of the graduating classes of these schools, California still needs a large annual influx of doctors from other states to keep pace with the expanding general population. This demand seems to balance itself pretty well from year to year; California maintains a steady population-physician ratio of about 750 to 1.

Lest today's physicians assume that all their indi-

vidual and collective problems are the result of today's stepped-up pace of living, it should be remembered that the forerunner of the C.M.A. nearly foundered in 1860 on the rocks of fee schedules. The physician members could not agree on standard schedules of fees and for a period of several years the newly-formed state medical society held no meetings. When tempers had cooled, meetings were resumed but it is apparent that some of the problems of one hundred years ago are still with us.

Today's physicians will also do well to remember that the causes of death of physicians in California have undergone a radical change in the past century. History books of the gold-rush period were replete with announcements of the deaths of doctors who were drowned while fording swollen streams on horseback. Another leading cause of physician deaths in those days was tuberculosis. Today we find heart disease and cancer at the head of the list of causes of death among doctors.

At the C.M.A. Annual Session this year, tribute will be paid to the completion of a century of public service by California's physicians. At this point we may well look forward to the coming century in the hope that it may find the healing of human ailments in hands as capable as those which fashioned the immense progress of the past century. When this eventuates, as it must, medicine will be that much closer to its constant goal of complete control over human suffering.

Blue and Golden Opportunity

AN EVENT that cannot but have great bearing on the direction of medical education in California, and strong influence ultimately on the practice of medicine here, was the appointment last month of a new dean of the University of California School of Medicine, San Francisco, and of an executive officer whose function is to be the statewide administration of all the university's teaching, research and service programs in the health sciences.

Dr. J. B. deC. M. Saunders, the new dean of the U. C. Medical School in San Francisco, and Mr. Richard J. Stull, vice-president-Medical Sciences of the state university, are presented with bright opportunities to serve the present and to shape the future. Both take over their duties at a time when the medical facilities they are to administer are malleable. The recently established medical school of the University of California at Los Angeles, which is within the purview of Mr. Stull's responsibilities, is in its beginning phase and subject to administrative shaping; the San Francisco school and the medical facilities that are a part of it, although long established, are so swiftly expanding that both appointees have, there, the opportunities and obligations that go with growth.

LETTERS to the Editor

November 28, 1955

Editor, CALIFORNIA MEDICINE

Recently, there appeared in your journal some criticism of the manner in which newspapers and other lay media handled the announcement of the Salk polio vaccine.

In general, the tenor of the criticism was that the news was overplayed or exaggerated.

On behalf of the National Association of Science Writers, I should like to call attention to the following quotations which attended the announcement of the 1954 field-trial results:

From the official news release approved by Dr. Thomas Francis, Jr., of the University of Michigan Poliomyelitis Vaccine Evaluation Center: "The vaccine works. It is safe, effective, and potent. . . . There can be no doubt now that children can be inoculated successfully against polio. There can be no doubt that humanity can pull itself up by its own bootstraps and protect its children from the insidious invasions of ultra-microscopic disease."

From Dr. William G. Workman, director, Laboratory of Biologics Control, National Institutes of Health: "It is not too much to say that we have reached today an important milestone in the conquest of poliomyelitis. . . . We can go forward with confidence that a major victory has been won in the conquest of poliomyelitis."

From Dr. Alan Gregg, vice-president, Rockefeller Foundation: "We can all count ourselves privileged today to be reverently happy witnesses of a great step forward in the control of infantile paralysis."

From Dr. David Bodian, associate professor of epidemiology, Johns Hopkins University: "The field trial has clearly proved that there is now a way to prevent paralytic poliomyelitis. . . ."

Months later, at the annual session of the American Medical Association in Atlantic City, the A.M.A.'s House of Delegates unanimously voted a resolution citing Dr. Jonas E. Salk for his "monumental contribution to medical science."

Now, then, when men of science shout the news from the rooftops in such superlatives are we who write about science expected to retire to the basement and speak in mere whispers?

JOHN TROAN,
Chairman, Committee on Information,
National Association of Science Writers.

5 Longview Road, Port Washington, N. Y.

California MEDICAL ASSOCIATION

NOTICES & REPORTS

Council Meeting Minutes

Tentative Draft: Minutes of the 415th Meeting of the Council, Ambassador Hotel, Los Angeles, November 12, 1955.

The meeting was called to order by Chairman Lum in the Frenchette Room, Ambassador Hotel, Los Angeles, on Saturday, November 12, 1955, at 9:30 a.m.

Roll Call:

Present were President Shipman, President-Elect Charnock, Speaker Doyle, Vice-Speaker Foster, Secretary Daniels, Councilors Lum, Heron, West, Wheeler, Loos, Wadsworth, Harrington, McPharlin, Sherman, Bostick, Teall, Kirchner, Varden, Carey and Rosenow.

Absent for cause, Editor Wilbur and Councilors Pearman and Reynolds.

A quorum present and acting.

Present by invitation during all or a part of the meeting were Messrs. Hunton, Clancy, Thomas and Gillette of C.M.A. staff; legal counsel Hassard; Messrs. Ben H. Read and Eugene Salisbury of the Public Health League of California; Drs. A. E. Larsen and William Gardinier and Messrs. K. L. Hamman, Paolini and Walberg of California Physicians' Service; county society executive secretaries Scheuber of Alameda-Contra Costa, Geisert of Kern, Bannister of Orange, Foster of Sacramento, Nute of San Diego, Neick of San Francisco, Thompson of San Joaquin and Edgar Colvin, assistant executive secretary of Santa Clara; Fred O. Field, legal counsel for Los Angeles County Medical Association; Drs. A. A. Morrison, J. Lafe Ludwig, Thomas LeValley, John DeMint, Joseph F. Sadusk, Wilbur Bailey, J. Norman O'Neill and Clarence D. Newel; Mr. Rollen Waterson.

1. Minutes for Approval:

(a) On motion duly made and seconded, minutes of the 414th meeting of the Council, held August 28, 1955, were approved.

(b) On motion duly made and seconded, minutes of the 252nd meeting of the Executive Committee, held September 14, 1955, were approved.

2. Appointment of Councilor:

Chairman Lum announced that the Delegates from the Sixth Councilor District had selected Dr. Donald C. Harrington of Stockton as their nominee for appointment as Councilor from that district, to succeed the late Henry A. Randel and to serve until the 1956 Annual Session. On motion duly made and seconded, Dr. Harrington was unanimously appointed to this position and was welcomed to the Council by the Chairman and the members.

3. Membership:

(a) A report of membership as of November 9, 1955, was received and ordered filed.

(b) On motion duly made and seconded, 94 delinquent members whose dues had been received since September 14, 1955, were voted reinstatement.

(c) On motion duly made and seconded in each instance, two applicants were voted Retired Membership. These were: Louise G. Frary, Alameda-Contra Costa, Ezra S. Fish, Los Angeles.

(d) On motion duly made and seconded in each instance, dues reductions were voted for 21 applicants for reasons of postgraduate study or prolonged illness.

SIDNEY J. SHIPMAN, M.D.	President
DONALD A. CHARNOCK, M.D.	President-Elect
JAMES C. DOYLE, M.D.	Speaker
PAUL D. FOSTER, M.D.	Vice-Speaker
DONALD D. LUM, M.D.	Council Chairman
ALBERT C. DANIELS, M.D.	Secretary-Treasurer
IVAN C. HERON, M.D.	Chairman, Executive Committee
DWIGHT L. WILBUR, M.D.	Editor
JOHN HUNTON	Executive Secretary

General Office, 450 Sutter Street, San Francisco 8

ED CLANCY Director of Public Relations
Southern California Office:

417 South Hill Street, Los Angeles 13 • Phone MADison 6-0683

(e) On motion duly made and seconded in each instance, 21 applicants were voted Associate Membership. These were: Sterling S. Cook, E. E. Palmquist, Alameda-Contra Costa; John O. Beatty, James F. Cummins, Paul H. Jordan, Jr., Helen Mackler, Don B. McAfee, Rita H. Palmer, Samuel I. Rapaport, Ralph M. Sher, Eugene S. Shreyer, Patrick A. T. Tripe, Los Angeles; John N. Fogel, San Diego; Ben B. Johnson, Irene M. Regello, San Francisco; Arthur M. Hanson, Cletus L. Krag, W. C. McWilliams, San Joaquin; Gordon A. Abbott, Saul Ruby, Santa Clara; Hermann K. Sachs, Tulare.

4. *Financial:*

(a) A report of bank balances as of November 9, 1955, was received and ordered filed.

(b) A report of income and expenditures for October and for the four months ended October 31, 1955, was received and ordered filed.

(c) On motion duly made and seconded, it was voted to appropriate \$25,000 before the close of the calendar year to the American Medical Education Foundation. It was noted that more than a three-fourths vote was affirmative. It was pointed out that the Association had contributed funds to the A.M.E.F. in 1954 and had voted an increase in dues to provide another contribution in 1956; the appropriation voted here will fill the 1955 gap between these two contributions.

5. *Legislation:*

Dr. J. Lafe Ludwig, member of the Committee on Legislation, and Messrs. Ben H. Read and Eugene Salisbury reported on recent legislative developments, current interim committees and the importance of several special elections scheduled in the state.

The question of graduates of foreign medical schools serving as interns in California hospitals was discussed and it was agreed to ask the Committee on Medical Education and Hospitals to study this matter and report back.

6. *State Department of Public Health:*

Dr. John DeMint of the State Department of Public Health reported that there had been 43 per cent fewer cases of poliomyelitis, nationally, in 1955 than in 1954. In California, the seasonal total is 1,463 cases, with 30 deaths, compared with 3,678 and 86, respectively, in 1954. Doctor DeMint also answered numerous questions relative to poliomyelitis and other diseases reported to the department.

7. *California Physicians' Service:*

Mr. K. L. Hamman, executive director, reported that the C.P.S. membership as of October 31 totaled 728,324, a continued gain, and that professional

membership was also gaining. In regard to indemnity insurance available under C.P.S., he reported that policies had been approved by the Insurance Commissioner but that only San Francisco and Los Angeles Counties had to date requested that such policies be sold in their areas.

8. *Medical Review and Advisory Board:*

Dr. Joseph F. Sadusk, chairman, reported on a meeting the preceding day of the Medical Review and Advisory Board, at which time several changes in the wording of the proposed principles to apply to professional liability insurance policies were approved. These were outlined and, on motion duly made and seconded, were voted approval by the Council.

9. *Commission on Medical Education:*

(a) Dr. Clarence D. Newel of Fresno, proprietor of the Valley Blood Bank, appeared by invitation and criticized the establishment of the Central California Blood Bank as a nonprofit organization in that area. He stated that the price offered him for his facilities represented a 45 per cent depreciation for his real estate.

Drs. Shipman and Rosenow and Mr. Hunton discussed blood banking in further detail and attention was called to the need for more frequent meetings of some of the important committees serving under this and other Commissions.

(b) Mr. Hunton reported that space adjoining the Association office was expected to be available soon and that the Cancer Commission had expressed a desire to occupy such space.

(c) Secretary Daniels reported on the Governor's Conference on Education and on the Conference on Physicians and Schools sponsored by the American Medical Association and attended by Dr. Daniels and Mr. Thomas. He also outlined a series of regional conferences of Physicians and Schools planned by the Association for the coming months.

(d) Dr. Rosenow reported on a meeting held with representatives of the Association of District Hospital Directors and of the California Hospital Association and suggested that further meetings of this type should be handled by the Committee on Legislation as falling more clearly within the scope of that committee. This was agreed.

(e) Dr. Rosenow reported that the Committee on Postgraduate Activities wished to continue its present policy of accepting only individual registrations for postgraduate institutes, rather than accepting blanket reservations offered by some county medical societies. It was agreed that the suggested policy be followed.

Also in the field of postgraduate training, it was regularly moved, seconded and voted to permit the

medical schools to make mailings to Association members in furtherance of their postgraduate courses.

(f) On motion duly made and seconded, it was voted to urge all Commission chairmen to activate their subcommittees and encourage their work on their especial projects.

10. *Commission on Public Health and Public Agencies:*

(a) Dr. West reported on a decision which is pending on the acceptability of practitioners other than Doctors of Medicine as specialists eligible to treat crippled children's cases. He also reported that a Rural Health Conference would be conducted in January and called attention to the October issue of CALIFORNIA MEDICINE, which was devoted exclusively to medical problems of Civil Defense.

11. *Commission on Medical Services:*

Dr. Carey, Chairman of the Commission on Medical Services, reported that a relative value fee study had been tabulated and copies sent to the county societies for their comments. A further report is to be made on this subject.

Dr. Carey also reported that no additional progress was to be reported at this time on the program for medical care of the indigent.

Relative to a resolution brought before the House of Delegates on the subject of deductible health insurance, Dr. Carey stated he would have the author of the resolution at the next Council meeting for a discussion of this subject.

12. *Legal Department:*

Mr. Hassard reported on a communication from the State Director of Public Health asking support for his stand in insisting on adequate training for office assistants in routine laboratory techniques. It was agreed to assure Dr. Merrill of support.

13. *California Medicine:*

(a) A set of regulations for advertising to be accepted in CALIFORNIA MEDICINE was presented in behalf of the Advertising Committee and, on motion duly made and seconded, was approved.

(b) A request from the Advertising Committee for clarification of the question of acceptability of advertising of alcoholic beverages was discussed and it was regularly moved, seconded and voted that alcoholic beverage advertising be not accepted.

14. *Public Relations:*

Mr. Clancy reported on the activities of the public relations department and suggested the formation of a committee to consider methods of publicizing the Association's centennial anniversary, to be celebrated at the 1956 Annual Session.

15. *Medical Executives Conference:*

Mr. Hunton reported the vote of the Medical Executives Conference, asking that Mr. Clark Donmyer, executive secretary of the San Bernardino County Medical Society, be appointed a member of the conference. On motion duly made and seconded, this appointment was voted.

Mr. Hunton also reported on the discussion by the conference on the proposal that the Association develop an exhibit suitable for display at county fairs. It was the consensus of the meeting that such an exhibit should not be constructed because of the difficulty of covering the localized interests of the various societies.

16. *Medical Assistants:*

A request for appointment of an advisory committee to meet with organizations of medical assistants was discussed and it was regularly moved, seconded and voted to refer this request to the Executive Committee.

17. *State Department of Education:*

It was regularly moved, seconded and voted to refer to the Executive Committee a request from the State Department of Education for appointment of members of an advisory committee on public school health.

18. *Woman's Auxiliary:*

(a) It was regularly moved, seconded and voted, by three-fourths vote, to increase the annual appropriation from \$4,000 to \$5,000 for publication of a journal for the Woman's Auxiliary.

(b) It was regularly moved, seconded and voted to accept the return of the sum of \$500 which was appropriated to the Woman's Auxiliary for purposes of the 1954 Annual Session and not used for that purpose.

19. *Secretarial Conference:*

On motion duly made and seconded, it was voted to invite to the 1956 Secretarial Conference the presidents, secretaries and public relations chairmen of the county medical societies.

20. *Los Angeles Cavalcade of Health:*

On motion duly made and seconded, it was voted that the Association participate in the Los Angeles Cavalcade of Health, sponsored by the Los Angeles County Medical Association, the Executive Committee to appropriate such funds as might be needed.

21. *State Board of Medical Examiners:*

Dr. Doyle reported on a meeting held to discuss the appropriation of surplus funds of the State Board of Medical Examiners, which by law are designated for specific purposes. Further report is to be made on this subject.

22. *Committee on Insurance:*

Dr. Kirchner reported that Lumberman's Mutual Insurance Co., underwriters of the Association's group disability insurance program, had agreed to an additional form of coverage, to provide for a six months' waiting period. The underwriter is considering the extension of benefits under the existing policies but wishes more experience before agreeing to such extensions.

Dr. Kirchner also reported that an additional form of group coverage, to provide funds for the payment of office overhead during periods of disability, had been presented to the committee and was under study.

23. *Medical Electronics:*

Dr. Daniels presented a request from the Professional Group on Medical Electronics, asking the Association's approval of the organization. On motion duly made and seconded, it was voted that, in line with regular policy, no approval or disapproval of this organization be expressed but that the Association offer its cooperation.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 6 p.m.

DONALD D. LUM, M.D., *Chairman*
ALBERT C. DANIELS, M.D., *Secretary*

Executive Committee Minutes

Tentative Draft: Minutes of the 253rd Meeting of the Executive Committee, Ambassador Hotel, Los Angeles, November 12, 1955.

The meeting was called to order by Chairman Heron in the Frenchette Room, Hotel Ambassador, Los Angeles, at 6:05 p.m. on Saturday, November 12, 1955.

Roll Call:

Present were President Shipman, President-Elect Charnock, Council Chairman Lum, Auditing Committee Chairman Heron, Speaker Doyle and Secretary Daniels.

A quorum present and acting.

Present by invitation were John Hunton, executive secretary; Howard Hassard, legal counsel; Mr. Rollen Waterson; Dr. Edward C. Rosenow, Jr.

1. *Committee on Postgraduate Activities:*

(a) On motion duly made and seconded, it was voted that all mailings to the membership to be made by this and other committees should be made on the Association's official mailing list.

(b) On motion duly made and seconded, it was voted that all statements for goods and services purchased by this and other committees shall, so far as it is possible, be billed to and paid by the Association's central office.

2. *Rollen Waterson Associates:*

Mr. Waterson presented his proposed budgets for November and December and, on motion duly made and seconded, they were approved.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 6:15 p.m.

IVAN C. HERON, M.D., *Chairman*
ALBERT C. DANIELS, M.D., *Secretary*

APPLICATION FOR HOUSING ACCOMMODATIONS

FOR YOUR CONVENIENCE in making hotel reservations for the coming meeting of the **California Medical Association**, April 29-May 2, 1956, Los Angeles, hotels and their rates are at the right. Use the form at the bottom of this page, indicating your first and second choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. **All requests for reservations must give definite date and hour of arrival as well as definite date and approximate hour of departure; also names and addresses of all occupants of hotel rooms must be included.**

**ALL RESERVATIONS MUST BE
RECEIVED BEFORE: APRIL 1, 1956**

Eighty-fifth Annual Session CALIFORNIA MEDICAL ASSOCIATION Los Angeles, California APRIL 29-MAY 2, 1956

HOTEL ROOM RATES *

AMBASSADOR HOTEL	Single	Double	Twin Beds	Suites
3400 Wilshire Boulevard				
Moin Building	9.00-17.00	.....	12.00-20.00	28.00-36.00
Gorden Studios	15.00-21.00	.....	22.00-26.00	38.00-48.00
CHAPMAN PARK HOTEL				
3405 Wilshire Boulevard .....	.....	.....	12.00	20.00-25.00
THE GAYLORD HOTEL				
3355 Wilshire Boulevard	7.00-9.00	9.50-11.50	9.50-11.00	22.00-27.00
HOTEL CHANCELLOR				
3191 West Seventh Street	6.00-8.00	9.00-10.00	10.00-12.00	17.00-22.00
MAYAN HOTEL				
3049 West Eighth Street	4.50-6.00	5.00-7.00	7.50-10.00	.....

*The above quoted rates are existing rates but are subject to any change which may be made in the future.

CALIFORNIA MEDICAL ASSOCIATION

450 Sutter Street—Room 2000
San Francisco 8, California

Please reserve the following accommodations for the 85th Annual Session of the California Medical Association, in Los Angeles, April 29-May 2, 1956.

Single Room \$..... Double Bedded Room \$..... Twin Bedded Room \$.....
Small Suite \$..... Large Suite \$..... Other Type of Room \$.....
First Choice Hotel..... Second Choice Hotel.....

ARRIVING AT HOTEL (date).....Hour:.....A.M.....P.M. { Hotel reservations will be held until
Leaving (date).....Hour:.....A.M.....P.M. { 6:00 P.M., unless otherwise notified

THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names of both persons for each double room or twin bedded room requested. Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

.....
.....
.....

Individual Requesting Reservations—Please print or type..... Delegee?..... Alternote?.....
Name..... County.....
Address..... City and State.....

In Memoriam

COOPER, BURPEE. Died in Eureka, November 7, 1955, aged 72, of nephritis. Graduate of the University of Arkansas School of Medicine, Little Rock, 1912. Licensed in California in 1925. Doctor Cooper was a member of the Humboldt County Medical Society.



DAVITT, G. GLASS. Died in Los Angeles, November 28, 1955, aged 77, of heart disease. Graduate of Yale University School of Medicine, New Haven, Connecticut, 1913. Licensed in California in 1921. Doctor Davitt was a member of the Los Angeles County Medical Association, a life member of the California Medical Association, and a member of the American Medical Association.



FIELD, A. MARION. Died in Hayward, November 29, 1955, aged 95, of renal failure due to cardio-renal disease, with pneumonia. Graduate of the California Eclectic Medical College, Los Angeles, 1896. Licensed in California in 1896. Doctor Field was a member of the Alameda-Contra Costa Medical Association, a life member of the California Medical Association, and a member of the American Medical Association.



GARNETT, ALGERNON S. Died in Fredericksburg, Virginia, October 30, 1955, aged 70, of heart disease. Graduate of George Washington University School of Medicine, Washington, D. C., 1908. Licensed in California in 1923. Doctor Garnett was a retired member of the San Bernardino County Medical Society, the California Medical Association, and an associate member of the American Medical Association.



KLOEPEL, CHESTER S. Died in Los Angeles, November 25, 1955, aged 61. Graduate of Wayne University College of Medicine, Detroit, Michigan, 1917. Licensed in California in 1944. Doctor Kloeppel was a member of the Los Angeles County Medical Association.



LAUBERSHEIMER, GEORGE ASHBY. Died in Los Angeles, November 13, 1955, aged 78, of malignant disease. Graduate of the University of Southern California School of Medicine, Los Angeles, 1900. Licensed in California in 1901. Doctor Laubersheimer was a retired member of the Los Angeles County Medical Association, the California Medical Association, and an associate member of the American Medical Association.

ciation, and an associate member of the American Medical Association.



MORRIS, SAMUEL A. Died in Los Angeles, December 3, 1955, aged 51, of heart disease. Graduate of McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1929. Licensed in California in 1937. Doctor Morris was a member of the Los Angeles County Medical Association.



PARKER, ASHLEY STEPHENS. Died in Merced, November 21, 1955, aged 84. Graduate of Tulane University of Louisiana School of Medicine, New Orleans, 1893. Licensed in California in 1893. Doctor Morris was a member of the Merced County Medical Society, a life member of the California Medical Association, and a member of the American Medical Association.



REGAN, LOUIS J. Died in Santa Monica, December 3, 1955, aged 63, of heart disease. Graduate of George Washington University School of Medicine, Washington, D. C., 1913. Licensed in California in 1922. Doctor Regan was a member of the Los Angeles County Medical Association.



RINEHART, JAMES FLEECE. Died in San Mateo, November 30, 1955, aged 54, of heart disease. Graduate of the University of California Medical School, Berkeley-San Francisco, 1927. Licensed in California in 1927. Doctor Rinehart was a member of the San Francisco Medical Society.



SMALLWOOD, WALTER CHARLES. Died in Long Beach, October 25, 1955, aged 65, of pulmonary emphysema. Graduate of Stanford University School of Medicine, Stanford University-San Francisco, 1916. Licensed in California in 1916. Doctor Smallwood was a member of the Los Angeles County Medical Association.



WILSON, HERMON FOWLER. Died in Palo Alto, November 28, 1955, aged 81. Graduate of the College of Physicians and Surgeons of San Francisco, 1898. Licensed in California in 1898. Doctor Wilson was a retired member of the San Francisco Medical Society, the California Medical Association, and an associate member of the American Medical Association.



WOMAN'S AUXILIARY

TO THE CALIFORNIA MEDICAL ASSOCIATION

PHYSICIANS' BENEVOLENCE . . .

A top-ranking Auxiliary project

What happens when the family bread-winner is disabled? Where can the family look for income to pay for daily needs?

These questions might be asked in any family, including a physician's. Often a brief incapacity to a physician affects the family income almost immediately, and a serious disability may well spell family disaster. Physicians' wives are aware of this—and also of the sad fact that many physicians have little to fall back upon in time of emergency.

Reflecting this awareness, your Auxiliary has given strong and constant support to the fund to aid needy physicians set up by the C.M.A. in 1940. The importance of this fund—now known as Physicians' Benevolence—needs no stressing here. Suffice it to say that the need for such a fund is all too well attested by the many physicians and physicians' families who have used it during the past fifteen years. Literally hundreds of doctors have been "seen through" serious difficulties by Physicians' Benevolence. And, even now, there are more than seventy-five physicians benefiting from this care.

Auxiliary Contributions

In 1940, a \$60,000 endowment goal for the Benevolence Fund seemed adequate. With inflation and the spiraling cost of living since then, this goal has shrunk to less than minimum. Even so, it has not yet been reached. However, considerable sums have gone into the Physicians' Benevolence Fund each year, most of the money coming from C.M.A. members.

The Woman's Auxiliary has contributed substantially, too, and has raised money each year for the Benevolence Fund to supplement the doctors' donations. Auxiliary donations in the past five years have added up to more than \$15,000—nearly one-fourth of the total Fund income for these years. This year, your Auxiliary hopes to increase its donations even further, and is now working toward a \$1 per capita total.

Fund-Raising Methods

Physicians' Benevolence is one of your Auxiliary's top-ranking projects, and many methods of fund-raising are used for it. Perhaps the best known, and a very successful method, is our "In Memoriam Fund." Auxiliary members, doctors and friends of the medical profession are urged to donate to the "In Memoriam Fund" in the name of their loved ones who have died—surely a most fitting memorial. Contributions are made through the local Auxiliaries and the amount given goes directly into the Physicians' Benevolence Fund.

Other fund-raising methods are used, too, including parties, "fairs" and other special events; and many counties deduct regularly from their members' dues for Physicians' Benevolence, as does the C.M.A.

Referral Service

Of importance equal to the Auxiliary fund-raising efforts for Physicians' Benevolence is the referral work done by Auxiliary members. It is estimated that at least fifty per cent of referrals to Physicians' Benevolence come through doctors' wives. Very often it is a doctor's wife who can most tactfully arrange for this much-needed help. Often, too, it is she who discovers the need.

Our Continuing Efforts

Because of the importance of Physicians' Benevolence, your Auxiliary maintains a year-around program to support this project. New members are acquainted with the working of the Fund upon joining, and all members are reminded often of the dual role which they may play—as fund-raisers and as individual "referral services"—to help Physicians' Benevolence.

Your Woman's Auxiliary looks forward, with you, to the date in May, 1956, which will see Physicians' Benevolence become a tax-free corporation. And we look forward, too, to working with you in the future to benefit this worthwhile and necessary project.

NEWS & NOTES

NATIONAL • STATE • COUNTY

FRESNO

Dr. Gordon A. Diddy of Fresno accepted appointment as director of medical institutions of Fresno County as of January 1. Formerly tuberculosis control officer for the county, Dr. Diddy was appointed to his new post by the county board of supervisors at a meeting in December.

LOS ANGELES

The annual all-day scientific meeting of the **Southern California Psychiatric Society** will be held on Saturday, January 28, 1956, at the Hotel Statler in Los Angeles immediately following the two-day meeting of the Western Regional Research Conference of the American Psychiatric Association being held at the Medical Center, University of California, Los Angeles, on the 26th and 27th of January.

The principal speakers will be Lawrence S. Kubie, M.D., clinical professor of psychiatry, Yale University, who will speak about problems in psychiatric research; and Franz Alexander, M.D., director, Institute for Psychoanalysis, Chicago, and clinical professor of psychiatry, University of Illinois, who will speak about problems in psychosomatic diagnosis and treatment.

All interested physicians and persons of allied medical, psychological and sociological interests are invited to attend.

* * *

The College of Medical Evangelists received some \$47,186 in **research grants** from the National Institutes of Health during 1955, according to a report by Ernest M. Allen, chief of the N.I.H. division of research grants. The monies came chiefly from the National Cancer Institute and the National Heart Institute, both subsidiaries of the N.I.H.

* * *

Dr. Carl M. Pearson has been awarded a grant of \$5,229 by the **Muscular Dystrophy Association** to support research into the causes of the disease which he is carrying out at the University of California, Los Angeles, School of Medicine. This grant extends one under which Dr. Pearson began his studies more than a year ago.

* * *

Dr. S. William Becker of Long Beach was elected vice-president of the American Academy of Dermatology at a recent meeting of the organization in Chicago.

* * *

Dr. John A. Culbertson, who a year ago was elected vice-president of the **Pomona branch** of the Los Angeles County Medical Association, was installed as president of the branch at its December meeting. Dr. George Tarjan was elected vice-president, and Dr. Walter S. McCleery secretary-treasurer.

* * *

Dr. Albert Josselson of Alhambra, a member of the faculty at the College of Medical Evangelists, was elected president of the Southern California Rheumatism Society at a recent meeting of the organization.

MARIN

Dr. John W. Culmer of Sausalito has been installed as president of the Marin County Medical Society for 1956. Other officers elected for the coming year at the annual business meeting held in December are Dr. Edward Healey, vice-president; Dr. Russell R. Klein, secretary, and Drs. Joseph Arons and William Andrews, directors. Dr. Healey will move up to the presidency a year from now. Dr. Klein succeeds Dr. William Smith, who has been secretary of the society for the past five years.

SAN DIEGO

Dr. Maurice J. Brown was installed as president of the San Diego County Medical Society at the first of this year, succeeding Dr. Ralph Mullenix. At a meeting of the society in December, Dr. James MacLaggan was elected president-elect; Dr. Wilton M. Lewis, treasurer, and Dr. James I. Knott, secretary.

SAN MATEO

Dr. Norman C. Fox of San Bruno has been installed as president of the San Mateo County Medical Society, succeeding Dr. James E. Edwards of San Carlos, who served in 1955. Dr. Henry A. Brown of San Mateo was elected president-elect. Dr. John F. Sawin of San Carlos and Dr. William H. Thompson of San Mateo were named directors.

SAN FRANCISCO

Dr. Matthew N. Hosmer succeeded to the presidency of the San Francisco Medical Society as of January 1, this year, and at the annual election of officers, held in December, Dr. Donald M. Campbell was chosen president-elect. He will take office as president at the beginning of 1957.

Other officers elected were Dr. Mary B. Olney, vice-president; Dr. Robert C. Combs, secretary; Dr. George K. Herzog, Jr., treasurer; Dr. Roberta Fenlon, bulletin editor. Directors elected were Drs. W. Wallace Greene, Margaret Henry, Charles Lebo, Otto H. Pflueger, Emmet L. Rixford, Edwin R. Schottstaedt and A. Justin Williams.

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Mrs. Bernice M. Hemphill, managing director of the **Irwin Memorial Blood Bank**, was reelected treasurer of the American Association of Blood Banks at the organization's annual business meeting held November 19-21, in Chicago.

SANTA CLARA

A grant of \$4,000 in support of research on the **effects of mercurial diuretics on the kidneys** was awarded last month by the American Heart Association to Dr. Jonas H. Sirota of San Jose. Dr. Sirota is carrying out the studies with Dr. Marcus Krupp, director of the Palo Alto Medical Research Foundation, Dr. James Tobias of Los Gatos and Dr. Bernard Axelraad of San Jose.

SOLANO

Dr. William R. Hoops, Vallejo, took office as president of the Solano County Medical Society at the first of this year, succeeding Dr. M. A. Schmutz, who was president in 1955.

Dr. O. R. Nestling of Vallejo was named president-elect at the society's annual elections, held last month, and Dr. George J. Budd, also of Vallejo, was elected secretary-treasurer.

YOLO

Dr. Heil D. Elzey, Woodland, was installed as president of the Yolo County Medical Society at the beginning of this year, succeeding Dr. Thomas Y. Cooper of Davis, who was president for 1955.

Dr. Henrik Graeser of Woodland was elected vice-president and Dr. John Jones, Davis, secretary.

GENERAL

The reappointment of Dr. Malcolm Merrill as director of public health for the State of California was announced last month by Governor Goodwin Knight. His term of office expires January 1, 1960. Dr. Merrill became head of the State Department of Public Health in April 1954, when Dr. Wilton Halverson resigned to become a member of the faculty of the University of California at Los Angeles School of Medicine.

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Total allotments of \$9,543,300 to hospitals and \$10,421,500 to universities and colleges in California were made from the \$550,000,000 of grants to the nation's privately supported hospitals, colleges and medical schools that were announced in December by the Ford Foundation. These totals do not include whatever share is received by the **privately financed medical schools** in California from a fund of \$90,000,000 earmarked by the Foundation to help meet "pressing financial needs" of such institutions. Individual allotments from that fund have not yet been announced.

Stanford University, with \$2,334,400, received the largest single share of the \$10,421,500 total allotted to 26 colleges and universities in California. The second largest grant was \$1,710,000 to the University of Southern California, and the third largest \$1,229,900 to California Institute of Technology.

POSTGRADUATE EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education assemblies and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Assistant Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Pathological Physiology, Mondays, January 30 to April 16, 1956. Twenty-four hours. Fee: \$50.00.

Application of Basic Science Techniques to Psychiatric Research, Thursday and Friday, January 26 and 27, 1956. Ten and one-half hours. Fee: \$3.50.

Basic Aspects of Endocrinology and Metabolism, January 16-April 2. Twenty-four hours. Fee: \$50.00.

Advanced Course in Techniques and Application of Hypnosis, January 19-21. Sixteen hours. Fee: \$100.00.

Pathological Physiology, January 30-April 16. Twenty-four hours. Fee: \$50.00.

Advanced Psychiatric Case Seminar, February 1-March 21. Sixteen hours. Fee: \$60.00.

The Application of the Principles of Industrial Medicine to Private Practice (second semester), February 1-March 28. Eighteen hours. Fee: \$40.00.

Diagnostic Medical Bacteriology for Laboratory Technicians, February 14-May 1. Thirty hours. Fee: \$30.00.

Annual Surgical Lecture Series, February 15-May 2. Twenty-four hours. Fee: \$50.00.

Surgical Anatomy of Abdomen, Thorax, April 24. Fifteen hours. Fee: \$125.00.

Problems of Sterility, February 23-March 22.*

Surgery of Trauma, March 29-30.*

Dermatology, 1956, June 22-23.*

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

In San Francisco:

Conference on Dermatology for General Practitioners, January 13 and 14, 1956. Twelve hours. Fee: \$40.00.

Ophthalmological Conference on Clinical Pathology, February 9, 10, 11, 1956. Fee: \$85.00.

Conference on Poliomyelitis, February 23, 24, 25, 1956.*

Course for General Practitioners, March 5 to 9, 1956. Fee: \$65.00.

Bedside Cardiology, March 19 to 23, 1956. Limited Enrollment.*

Course in Electrocardiography for Beginners, March 19 to 23, 1956.*

Proctology, April 7, 1956.*

Urology in Office Practice, April 8, 1956.*

Plastic Surgery, May 18, 1956.*

Peripheral Vascular Surgery, May 19, 1956.*

Symposium on Glaucoma, March 22-23.*

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

In Los Angeles:

Practical Electrocardiography, Friday, Saturday and Sunday, February 10, 11, 12. All day. Fee: \$50.00.

Surgical Plating, Begins March 10, 1956. Twelve hours. Fee: \$25.00.

Physics of Clinical Applications of Radioactive Isotopes, Twenty-four hours, February 10-June 22. Fee: \$50.00.

* Fees to be announced.

Anesthesia. Full time for three months. Opening every three months. Fee: \$300.00.

Contact: Phil R. Manning M.D., Director of Medical Extension Education, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33.

COLLEGE OF MEDICAL EVANGELISTS

Anesthesiology. Daily, full-time, four months, beginning each four months. Fee: \$300.

Varicose Veins and Surgical Diseases of the Peripheral Vascular System, Tuesdays, January 17 to February 28, 1956. Fourteen hours. Fee: \$30.00.

Otolaryngology, Tuesdays, February 7 to March 27, 1956. Twelve hours. Fee: \$30.00.

Gynecology, Wednesdays, March 21 to May 23, 1956. Ten hours. Fee: \$30.00.

Operative Surgery, Wednesdays, March 21 to June 6, 1956. Thirty hours. Fee: \$200.00.

Thoracic Surgery, Wednesdays, April 18 to May 9, 1956. Eight hours. Fee: \$30.00.

Diseases and Injuries of Bones and Joints, Daily, July 2 to July 31, 1956. Full time. Fee: \$100.00.

Contact: Chairman, Section on Graduate and Postgraduate Medicine, College of Medical Evangelists, 1720 Brooklyn Ave., Los Angeles 33.

STANFORD UNIVERSITY

Monday Morning Clinical Conferences, Room 515.

Contact: D. H. Pischel, M.D., Professor, Division of Ophthalmology, Stanford University School of Medicine.

Postgraduate Conference in Otorhinolaryngology, March 26 to 30, 1956. Fee: \$100.00.

Postgraduate Conference in Ophthalmology, March 19 to 23, 1956. Fee: \$100.00.

Postgraduate Conference in Practical Pediatric Dermatology, March 23-24. Fee: \$50.00.

Contact: Office of the Dean, Stanford University School of Medicine, 2398 Sacramento Street, San Francisco 15.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE INSTITUTES

SOUTHERN COUNTIES in association with the University of Southern California School of Medicine, January 19-20, 1956, Laguna Hotel, Laguna Beach.

WEST COAST COUNTIES in association with College of Medical Evangelists, March 1-2, 1956, Golden Bough Theater and La Playa Hotel, Carmel.

NORTH COAST COUNTIES in association with University of California School of Medicine, San Francisco, April 5 and 6, 1956, Odd Fellows Hall, Santa Rosa.

SAN JOAQUIN VALLEY COUNTIES in association with the University of California School of Medicine, Los Angeles, May 10 and 11, 1956, Hacienda, Fresno.

SACRAMENTO VALLEY COUNTIES in association with Stanford University School of Medicine, June 21, 22, 1956, Cal-Neva Lodge, Lake Tahoe.

Contact: C. A. Broadus, M.D., Director of Postgraduate Activities, P.O. Box A-1, Carmel, California, or Mrs. Margaret H. Griffith, Assistant Director, Postgraduate Activities, California Medical Association, 417 So. Hill St., Los Angeles 13.

Medical Dates Bulletin

JANUARY MEETINGS

CALIFORNIA RURAL HEALTH COUNCIL CALIFORNIA CONFERENCE ON RURAL HEALTH. Hacienda, Fresno. January 20-21.

Contact: Glenn Gillette, California Medical Association, 450 Sutter Street, San Francisco.

FEBRUARY MEETINGS

PUBLIC HEALTH LEAGUE OF CALIFORNIA annual meeting Southern District, Los Angeles, 6:30 p.m., February 2, 1956; annual meeting Northern District, 6:30 p.m., February 9, 1956, in San Francisco.

Contact: Ben H. Read, executive secretary, 510 South Spring Street, Los Angeles 13.

SACRAMENTO COUNTY HEART ASSOCIATION PHYSICIANS' SYMPOSIUM. February 8. Tuesday Club House Auditorium.

Contact: Allan E. Moe, M.D., 3560 Jay Street, Sacramento.

ALAMEDA-CONTRA COSTA MEDICAL ASSOCIATION Graduate Assembly. "The Dynamics of Endocrine Disease," Highland-Alameda County Hospital, February 10.

Contact: L. W. Kinsell, M.D., Instructor for Metabolic Research, Highland-Alameda County Hospital, Oakland.

COLORADO STATE MEDICAL SOCIETY MIDWINTER CLINICAL SESSION. Shirley-Savoy Hotel, Denver, February 14-17.

Contact: Harvey T. Sethman, Exec. Secy., 835 Republic Building, Denver 2, Colorado.

AMERICAN BOARD OF SURGERY EXAMINATIONS, Part II, Los Angeles, February 13 and 14. Closing date is December 1.†

AMERICAN BOARD OF SURGERY EXAMINATIONS, Part II, San Francisco, February 16 and 17. Closing date is December 1.†

MIDWINTER X-RAY CONFERENCE sponsored by Los Angeles Radiology Society, Biltmore Hotel, Los Angeles, February 25 and 26, 1956.

Contact: Robert B. Engle, M.D., program chairman, St. Luke's Hospital, Pasadena 8.

UNIVERSITY OF CALIFORNIA SPROUL ANNIVERSARY CELEBRATION SYMPOSIUM, "The University and the Medical Sciences." Monday and Tuesday evenings, February 27 and 28, 1956, Morrison Auditorium in Golden Gate Park, San Francisco. All physicians cordially invited to attend.

Contact: Seymour M. Farber, M.D., chairman, at Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrorse 4-3600, Ext. 665.

MARCH MEETINGS

COLLEGE OF MEDICAL EVANGELISTS ALUMNI POSTGRADUATE CONVENTION. Refresher courses, March 4 and 5, 1956, White Memorial Hospital, Los Angeles. Scientific Assembly, March 6 to 8, 1956, Biltmore Hotel, Los Angeles.

Contact: Walter B. Crawford, managing director, College of Medical Evangelists, Loma Linda.

CANCER COMMISSION, California Medical Association, Cancer Conference for San Diego County Medical Society. March 13, 5:30 p.m., U. S. Naval Hospital, San Diego.

Contact: Walter E. Batchelder, M.D., Medical Director, Cancer Commission, 467 O'Farrell Street, San Francisco.

†For information, *contact:* John B. Flick, M.D., 255 S. Fifteenth Street, Philadelphia 2, Pa.

MEDICAL ALUMNI COMMITTEE OF CHILDREN'S HOSPITAL, San Francisco, March 17, 1956.* Morning: Dermatology. Afternoon: Nutritional problems peculiar to modern pediatrics.

APRIL MEETINGS

CALIFORNIA TUBERCULOSIS AND HEALTH ASSOCIATION, California Trudeau Society and California Sanatorium Association Annual Meeting, Sheraton-Palace Hotel, San Francisco, April 5, 6, 7.

Contact: E. L. Daggett, director, Public Relations, California Tuberculosis and Health Association, 130 Hayes Street, San Francisco 2.

CANCER COMMISSION, California Medical Association, Cancer Conference for Fresno County Medical Society, April 10, 7:00 p.m., Sunnyside Country Club, Fresno.

Contact: Walter E. Batchelder, M.D., Medical Director, Cancer Commission, 467 O'Farrell Street, San Francisco.

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION, 14th annual meeting, Calexico (California) and Mexicali (Baja California), April 13 to 16, 1956.

Contact: Sidney B. Clark, M.D., secretary, 204 U. S. Court House, El Paso, Texas, or Donald G. Davy, M.D., assistant chief, Division of Local Health Service, 2151 Berkeley Way, Berkeley 4.

MEDICAL ALUMNI COMMITTEE OF CHILDREN'S HOSPITAL, San Francisco, April 14, 1956.* Behavior Problems and Childhood Psychiatry.

AMERICAN COLLEGE OF PHYSICIANS 37TH ANNUAL SESSION, Los Angeles, April 16-20, 1956.

Contact: George C. Griffith, M.D., General Chairman, Box 25, 1200 N. State St., Los Angeles 33.

VALLEY CHILDREN'S HOSPITAL ANNUAL SPRING CLINICS, April 27 and 28, 9 a.m., Roosevelt High School Auditorium, Fresno.

WESTERN INDUSTRIAL MEDICAL ASSOCIATION annual meeting, all day, April 28, Ambassador Hotel, Los Angeles.

Contact: Edward Zaik, M.D., secretary, 740 South Olive Street, Los Angeles 14.

*For registration or information, contact: Gertrude Jones, M.D., Children's Hospital, San Francisco.

HAWAII MEDICAL ASSOCIATION Centennial Celebration. Scientific sessions, historical pageant of 100 years of medicine in Hawaii, social festivities, etc., Honolulu, April 22 to 29.

Contact: Hawaii Medical Association, 510 S. Beretania Street, Honolulu 13, Hawaii.

CALIFORNIA MEDICAL ASSOCIATION ANNUAL MEETING, Ambassador Hotel, Los Angeles, April 29 to May 2, 1956.

Contact: John Hunton, Executive Secretary, 450 Sutter St., San Francisco 8, or Ed Clancy, Director of Public Relations, 417 S. Hill St., Los Angeles 13.

MAY MEETINGS

NEW MEXICO MEDICAL SOCIETY annual session, Roswell, New Mexico, May 2 to 4.

Contact: Ralph R. Marshall, executive secretary, 223-24 First National Bank, Albuquerque, N. M.

CALIFORNIA HEART ASSOCIATION ANNUAL MEETING AND SCIENTIFIC SESSION, La Playa Hotel, Carmel, May 18 to 20, 1956.

Contact: Alan Croft Blanchard, field director, California Heart Association, 1428 Bush Street, San Francisco 9.

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION Annual Meeting, Salt Lake City, Utah, May 30 to June 2.

Contact: Mrs. L. Amy Darter, secretary-treasurer, at State Public Health, 2151 Berkeley Way, Berkeley 4, California.

SUMMER AND FALL MEETINGS

COLORADO DIVISION OF THE AMERICAN CANCER SOCIETY 10th annual Rocky Mountain Cancer Conference, Shirley-Savoy Hotel, Denver, Colorado, July 11 and 12.

Contact: John S. Bouslog, M.D., 835 Republic Building, Denver 2, Colorado.

SAN DIEGO COUNTY GENERAL HOSPITAL TENTH ANNUAL POSTGRADUATE ASSEMBLY, September 19-20.

Contact: Howard B. Kirtland, Sr., M.D., Chairman, Postgraduate Committee, 3505 Fourth Avenue, San Diego 3.

CALIFORNIA SOCIETY OF INTERNAL MEDICINE ANNUAL MEETING, September 29, La Playa Hotel, Carmel.

Contact: Mrs. Mildred B. Coleman, Assistant Secretary, Room 515, 384 Post Street, San Francisco 8.

INFORMATION

U. C. Medical School Appointments

THE APPOINTMENT of Richard J. Stull as vice-president-Medical Sciences of the University of California, and of Dr. J. B. deC. M. Saunders as dean of the School of Medicine, San Francisco, was announced by Robert G. Sproul, president of the university, at mid-December.

Mr. Stull, 39, a nationally known authority on hospital administration, since 1948 has held a statewide post in the university as director of hospitals and infirmaries.

Dr. Saunders, 52, a noted anatomist, has been a member of the faculty since 1931 and chairman of the department of anatomy since 1937.

The post of vice-president-Medical Sciences is a new position in the university. In this post, Mr. Stull will hold statewide administrative responsibility for the university's teaching, research and service programs in the health sciences.

Dr. Saunders succeeds to the deanship vacated by the resignation in June, 1954, of Dr. Francis S. Smyth, who has continued in the School of Medicine as professor of pediatrics and director of the Indonesia Project.

As director of hospitals and infirmaries for the university since 1948, Mr. Stull has had statewide responsibility for the administration of the teaching hospitals at the university's medical centers at San Francisco and Los Angeles as well as student infirmaries.

He also holds an academic appointment as director of a course in hospital administration for the university on the Berkeley and San Francisco campuses.

Since his appointment to his present post, Mr. Stull has played a key role in the development of the university's statewide program of medical education and service. He was prominent in planning the modern facilities at the medical centers both at San Francisco and Los Angeles.

Mr. Stull is a native of Pennsylvania. He received the A.B. degree from Duke University in 1940, and graduated from the Duke University School of Medicine's course in hospital administration in 1942. He served for six months as assistant purchasing agent of Duke University for two years

(1942-44) as administrator of the Phoenixville (Penn.) Hospital and for two years (1944-46) as superintendent of the Norfolk (Va.) General Hospital.

Mr. Stull conducted a statewide hospital survey for the California State Department of Public Health in 1946-47, and was the western representative for a private firm of consultants in 1947-48.

He has served as consultant in his specialty to numerous private and local and state government agencies and to the U. S. State Department. He has conducted two studies for Australian hospital groups. He played an important role in the establishment of the cooperative program the University's School of Medicine, San Francisco, has with the University of Indonesia.

Mr. Stull is a member of a number of professional organizations in his field.

With his wife, Mary Elizabeth, and three children he lives in San Anselmo.

Dr. Saunders, who was born in Grahamstown, South Africa, the son of a British surgeon, was educated in the St. Andrews College, Rhodes College in South Africa and at the University of Edinburgh, in Scotland, where he received his medical degree in 1927. He held various appointments at Edinburgh beginning in 1925 during his medical training. In 1930 he spent some time as honorary surgeon at the institution's Settler's Hospital, South Africa.

Dr. Saunders was appointed to the faculty of the School of Medicine on the San Francisco campus of U. C. in January, 1931, as assistant professor of anatomy. He was appointed chairman of the department of anatomy in 1937 and to full professorship in 1938. He also holds appointments as lecturer in medical history and bibliography and librarian of the School of Medicine Library.

Dr. Saunders has won distinction as a brilliant researcher on a wide range of medical problems. He is especially distinguished for his work on the structure and development of bones, the physiology of muscles, the mechanics of movement (especially walking) and for participation in the development of new surgical procedures.

Typical of the fields of research in which Dr. Saunders has worked vigorously for some two decades has been the study of the means for repairing functions damaged by the destruction of muscles in such conditions as poliomyelitis.

His participation in the work of the Biomechanics Group, which is made up of colleagues on the San Francisco campus and in the College of Engineering on the Berkeley campus, has helped to establish the bases for improving artificial limbs.

Equally important has been his work in developing new surgical procedures, especially of the intes-

tinal tract. He also played an important role in elucidating the function of the intervertebral discs.

Dr. Saunders has also conducted important studies in medical history. His publications in this field include major works on Leonardo da Vinci and Andreas Vesalius, the great 16th century Belgian anatomist. A series of films he did in collaboration with Dr. L. C. Abbot, professor of orthopedic surgery, won the 1952 American College of Surgeons' certificate of award for outstanding educational value.

The new dean is the author of scores of scientific papers that are wide-ranging and versatile in subject matter.

He is noted for his brilliance as a teacher as well as a researcher. His students remember him for such feats as the ambidextrous capacity to make

anatomical blackboard drawings with both hands at one time.

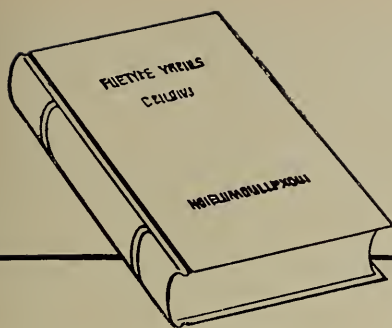
Dr. Saunders' interests are also diversified in the nonmedical field. He golfs in the low 70's and he is a yachtsman.

He is a member of many American and British learned societies, such as the American Medical Association and the Royal College of Surgeons, Edinburgh.

Dr. Saunders lives in San Francisco. Mrs. Saunders is the former Alison Maxwell Wood, who was born in Scotland. They have two daughters, Alison, a graduate student, and Margery, a sophomore, on the Berkeley campus.

The new dean's full name is John Bertrand deCusance Morant Saunders.





THE PHYSICIAN'S *Bookshelf*

THE PATHOGENESIS OF POLIOMYELITIS—Harold K. Faber, M.D., Professor Emeritus of Pediatrics, Stanford University School of Medicine, Charles C. Thomas, Publisher, Springfield, 1955. 157 pages, \$5.00.

This book summarizes many years of painstaking study of the pathogenesis of poliomyelitis and is recommended to every serious student of this disease; its appeal will be greatest to those with good understanding of the problems of poliomyelitis. The thesis that pathways of ingress and egress of the virus lie within nerve cells and not primarily in other tissues is succinctly and convincingly supported. The concept elsewhere proposed that virus multiplication and dissemination occurs in many tissues other than the nerve cells and that central nervous system involvement is a phenomenon secondary to systemic infection is subjected to searching and most persuasive contradiction based on experimental pathological studies and clinical observation which is most difficult to refute. Much of the newer knowledge of the distribution and nature of the infectious agent is effectively reconciled with the ideas of the natural history of the virus which the author has advanced for many years.

This volume does not make for easy reading but moves forward logically and without repetitiousness to its conclusions. Your reviewer read it through carefully twice with profit.

The bibliography alone would make this work worth while because it carefully documents so many matters of great importance in this disease.

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J.A.M.A. CLINICAL ABSTRACTS OF DIAGNOSIS AND TREATMENT—Noah Fabricant, M.D., Editor. Published with the approval of the Board of Trustees, American Medical Association, 1955. Intercontinental Medical Book Corporation, with Grune and Stratton, Inc., New York, 1955. 627 pages, \$5.50.

For more than a half century the medical literature abstract section of the Journal of the American Medical Association has been one of its most popular and useful features. It provides knowledge in capsule form for the specialist as well as the general practitioner. It emphasizes in its selection two aspects of practice—diagnosis and treatment.

The Journal has now decided to issue selected abstracts in an annual series of which this volume is the first. The selection is good as are the abstracts proper.

On the other hand, the reviewer, impressed though he is with the excellence of the Journal's abstract department, can see little reason for compiling these abstracts into yet another annual volume. They are already available in the bound volumes of the Journal. In this new volume they are competing with the much more complete Excerpta Medica and the various annual reviews which make an attempt at integrating the more useful contributions into a coherent whole.

Despite this the Journal's prestige is probably sufficient to cause many physicians to purchase these abstracts.

DIFFERENTIAL DIAGNOSIS—The Interpretation of Clinical Evidence—A. McGehee Harvey, M.D., Professor of Medicine and Head of the Department of Internal Medicine, the Johns Hopkins University School of Medicine, and James Bordley III, M.D., Director, Mary Imogene Bassett Hospital, Cooperstown, N. Y., Clinical Professor of Medicine, Columbia University, New York, and Clinical Professor of Medicine, Albany Medical College. W. B. Saunders Company, Philadelphia, 1955. 665 pages, \$11.00.

This book attempts to provide a method of approach to the diagnosis of disease by expansion of the art and science of differential diagnosis. This has been done through the medium of the Clinical Pathological Conference. These conferences, largely of the Johns Hopkins Hospital, present differential diagnosis as a systematized discipline. Each conference is oriented around a principal condition. They are written up chapter by chapter and a good many illustrative cases are given.

The volume is a good exercise book for students and prospective conductors of clinical pathological conferences. There are many "pearls" given in the course of the book, as well as many tables of differential diagnosis, which are excellent and useful. After the known cases are presented there is a series of unknown cases on which the reader may try his skill. Following this is a table of laboratory values, which should be titled "normal." Additional valuation of tests such as the serology would be helpful.

There are serious limitations to the method which the authors have adopted. It exaggerates the difficulties of diagnosis; it prevents consideration of the diagnosis of disease which does not run a fatal course or in which accurate diagnosis results in life-saving therapeutic measures. Even more limiting, the graduate physician, in order to get most out of the book, must follow the authors' established patterns of thinking and writing, exactly, never peeking from the printed page. As for the conferences themselves, they are well chosen and well done. However, try as the authors may, they fail to capture the character and personality of the conductor of the conference (in these largely the late Dr. Louis Hamman) and of the pathologist, the two ingredients which make clinical pathological conferences most interesting and enjoyable.

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MINOR SURGERY—John E. Sutton, M.D., F.A.C.S., Assistant Clinical Professor of Surgery, Cornell University, Medical College, Landsberger Medical Books, Inc. Distributed solely by The Blakiston Division of the McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y., 1955. 334 pages, \$7.00.

As the name implies, this book is a handbook of minor surgery for the General Practitioner. The thirteen chapters cover briefly the minor encounters in a general practice. Although the discussions are short and "to the point," one cannot help but feel that many subjects discussed should be common knowledge to anyone fortunate enough to have received their M.D. degree. The illustrations are fair but there are other books on minor surgery which are more adequate.

A PRIMER OF ELECTROCARDIOGRAPHY—Third Edition, thoroughly revised—George E. Burch, M.D., Henderson Professor of Medicine, Tulane University School of Medicine, and Travis Winsor, M.D., Assistant Clinical Professor of Medicine, U.S.C. School of Medicine. Lea & Febiger, Philadelphia, 1955. 286 pages, 281 illustrations, \$5.00.

This book was one of the first to offer the student some idea as to *why* the deflections go up or down, instead of only presenting electrocardiographic patterns to memorize. This commendable method, based here on the dipole theory, has been carried into the third edition. From a graphic description of a dipole and its application to the electrocardiogram, the book moves progressively—although not entirely in an orderly way—through the five chapters to sections on vector cardiography and ventricular gradient. Professing the necessity for dogmatism in a primer, the material is so presented. A fair balance is struck, although for example the text on the Wolff-Parkinson-White syndrome is twice as long as that of left ventricular hypertrophy. The effect of cooling and potassium on the polarized membrane and similar material might be relegated to small print. The illustrations are excellent, but the mix-up of figures and legends from pages 145 to 150 is inexcusable. The index is short but adequate. The chapter on Disorders of the Heart Beat is very good. For brevity and completeness, a majority of beginners turn to this text and will continue to do so.

* * *

CLINICAL TOXICOLOGY—Third Edition, Revised—Clinton H. Thienes, M.D., Ph.D., Director, Institute of Medical Research, Huntington Memorial Hospital; and Thomas J. Haley, Ph.D., Chief of the Division of Pharmacology and Toxicology, Atomic Energy Project, and Associate Clinical Professor of Medicine, UCLA School of Medicine. Lea and Febiger, Philadelphia, 1955. 475 pages, \$6.50.

The preface of this book indicates that it is intended for the classroom and for the general practitioner. The major toxic action of poisons has determined their grouping, actually on the basis of their systemic action. For example—the convulsants are considered in Section I, the central nervous system depressants in Section II, the peripherally acting nerve poisons, poisons acting on nerve trunks, ganglia and nerve endings in Section III, the muscle poisons in Section IV, the protoplasmic poisons in Section V, the blood and hematopoietic poisons in Section VI. Other sections are devoted to Principles of Treatment (of poisoning), Outline of Symptom Diagnosis, and Chemical Diagnosis of Poisoning. It is in the latter sections that the practitioner might find greatest help.

The level of excellence of previous editions is maintained throughout the third revision.

* * *

DISEASES OF THE EAR, NOSE, AND THROAT IN CHILDREN—T. G. Wilson, M.B., B.Ch., Litt.D., F.R.C.S.I., M.R.I.A., Ear, Nose, and Throat Surgeon, Dr. Stevens' Hospital, National Children's Hospital, Dublin. Grune & Stratton, New York, 1955. 307 pages, \$12.00.

This is an excellent textbook. The information is surprisingly current and extremely well selected. Reference to other sources, for confirmation or elaboration, is generous but is neither boring nor distracting.

The preface is short, to the point, and should be read. It contains information that this is the first textbook to be written on diseases of the ear, nose and throat in children. The table of contents is satisfactory. The index is quite complete. This completeness was slightly confusing at first, but a real pleasure later. The illustrations are superior or good (several are the work of the author). Two reproductions of x-ray films should have been retouched or, by preference, replaced with examples showing more contrast.

Chapters 6, 7 and 8 dealing with deafness, training and education of the deaf child and defective speech are espe-

cially worthwhile. The diagram outlining the postnatal development of the accessory nasal sinuses is well worth several moments of study. The discussion of laryngotracheal bronchitis is clear-cut, concise, and sound in all respects.

One of the few points for disagreement is the recommendation that all acute accessory nasal sinusitis, acute pharyngitis, and tonsillitis be subjected to immediate energetic antibiotic treatment. This objection is presented on the bases that it is not good medicine and certainly not good teaching. Such a recommendation can only add to the too prevalent overuse and abuse of the antimicrobials. The fact that the reviewer does not always agree with the author is quite beside the point and does not in any way influence his appreciation and evaluation of this textbook.

This textbook is recommended, without qualification, as required reading for all otolaryngologists, pediatricians, general practitioners and others who have to deal with diseases of the ear, nose and throat in children.

* * *

MANAGEMENT OF DISORDERS OF THE AUTONOMIC NERVOUS SYSTEM—Louis T. Palumbo, M.D., Chief, Surgical Service, V. A. Hospital, Des Moines. The Year Book Publishers, Inc., 200 East Illinois Street, Chicago, 1955. 186 pages, \$5.00.

This small book presents a short description of the anatomy and physiology of the autonomic nervous system, followed by an account of a great variety of disorders that may be treated by pharmacological or surgical intervention with this portion of the nervous system. Some of the anatomical and physiological concepts are not those generally accepted, nor is adequate reference made to the work on which the concept is based. The disorders that may be helped by sympathectomy are catalogued, without any very critical appraisal of the evidence for or against the procedure. Apparently a removal of a major part of the autonomic system is compatible with fairly normal function of the organism, so that this tissue joins the company of the tonsil and the vermiform appendix in popularity with the surgeon. Only time will tell the value of such extirpations, but it is safe to guess that they will be of value in many fewer disease conditions than are catalogued in this book.

* * *

PATHOLOGY FOR THE SURGEON—Seventh Edition—William Boyd, M.D.(Edin.), Dipl. Psychiat.(Edin.), F.R.C.S.(Canada), F.R.C.P.(Lond.), M.R.C.P.(Edin.), F.R.S.(Canada), LL.D.(Sask.), D.Sc.(Man.), M.D.(Oslo), Lecturer on the Humanities in Medicine, The University of Toronto, Visiting Professor of Pathology, The University of Alabama, and Formerly Professor of Pathology, The University of Manitoba, The University of Toronto and the University of British Columbia. W. B. Saunders Company, Philadelphia, 1955. 737 pages, 547 illustrations including 10 in color, \$12.50.

This seventh edition of a well known work is in reality a new book, containing much that has been rewritten, and even possessing a modified title, which previously was "Surgical Pathology." The purpose of this thorough revision has been to renovate the approach to surgical diseases which have changed greatly in the thirty years since the first edition. The breadth of interest of the surgeon has increased to include nearly every part of pathology, and as a result there is now no readily distinguishable segment of pathology which can justifiably be called surgical in contrast to the rest of pathology. Hence the original name of the book has been changed.

The book is designed for surgeons rather than pathologists, and it is written with the aim of emphasizing the usefulness of knowledge concerning the nature of disease. Dr. Boyd's enjoyable style, so conspicuous in his various textbooks of pathology, has not suffered by the changes in this edition. The aim of providing for the surgeon a broad survey of pathology has been achieved. Illustrations are abundant, well chosen and technically good.

BEDSIDE DIAGNOSIS—Third Edition—Charles Seward, M.D., F.R.C.P. (Edin.), Physician, Royal Devon and Exeter Hospital. E. & S. Livingstone, Ltd. Edinburgh, 1955. Distributed in the United States by Williams and Wilkins Company, Baltimore, Maryland. 408 pages, \$4.00.

This small volume would perhaps be better entitled *Bed-side Symptomatology*. It takes up the subject of diagnosis on the basis of selected symptoms in some twenty-two chapters, seven of which are concerned with the subject of pain in general and in different locations. Five chapters are concerned with loss of blood of one kind or another and the remaining ones with certain other principal symptoms such as cough and dyspnea.

The third edition includes the rewrite of some 60 pages, in particular, the sections on hemolytic anemia and jaundice, cirrhosis, subarachnoid hemorrhage, cholecystitis and hiatus hernia. At the beginning of the chapters there is a synopsis which summarizes the chapter well.

This is a small, thoughtful, but incomplete book. For example, the chapter on General Considerations Regarding Pain is quite interesting. On the other hand, only seven pages are devoted to the vast subject of Psychogenic Symptoms and some of these to philosophy; in comparison, twelve pages are given over to the relatively circumscribed topic of dysphagia.

The book was written primarily for British students. It may be commended to American students for purposes of comparison.

* * *

SURGERY OF THE ALIMENTARY TRACT (Bickham-Callander)—Volumes I, II and III—Richard T. Shackelford, M.D., Assistant Professor of Surgery, Johns Hopkins University School of Medicine; Assisted by Hammond J. Dugan, M.D., Assistant in Surgery, Johns Hopkins University School of Medicine, W.B. Saunders Company, Philadelphia, 1955. 2575 pages, 1705 illustrations, 89 pages of index, \$60.00.

Thirty years ago the most authoritative book on operative surgery was Bickham's text on *Operative Surgery*. It represented a six-volume presentation of the techniques of general and special surgery, but there was no evaluation of techniques described and discriminative surgical judgment was unattainable from a study of its contents. Callander began in 1938 to revise Bickham's text, but failed to complete the revision prior to his death in 1947. Shackelford undertook the revision in 1949 and has truly accomplished a superb task in bringing the book up-to-date and adding to an excellent description of the operative procedures a mature and seasoned judgment of their value. This is an excellent reference work for surgery of the alimentary canal, and will be particularly useful in a hospital library wherever surgery is commonly practiced.

The book consists of 3 volumes. Volume 1 deals with the esophagus, stomach, duodenum, liver, gallbladder, and extrahepatic bile ducts. Volume 2 covers the pancreas, spleen, small intestine, peritoneum, omentum, mesentery, colon. Volume 3 concerns itself with the anorectal tract, hernias, and abdominal incisions.

The work is encyclopedic. Practically every procedure which has been described in the literature within the past 10 years in each area is reviewed and discussed, the original illustrations usually accompanying the written discussion. The author has been able to draw heavily on the illustrations of other excellent Saunderson's publications and has richly illustrated the text with clear yet beautiful drawings. Sufficient information is given at the end of each group of available surgical procedures to enable the reader to form a sound judgment as to the relevance and merit of each operation. The references cited at the end of each chapter are well-selected and adequate yet not too numerous. A rapid review of the essentials of the surgical literature of the past

10 years with the original illustrations being copied is available to the reader of this book.

The only real criticism of the book is that it is too lengthy and encyclopedic and that it is too expensive. It is an excellent reference work for all libraries. The author is to be complimented on this masterful accomplishment, and surgery will be benefited for years to come by this assemblage of knowledge.

* * *

SYSTEMIC LUPUS ERYTHEMATOSUS—Review of the Literature and Clinical Analysis of 138 Cases—A. McGehee Harvey, M.D., Lawrence E. Shulman, M.D., Philip A. Tumulty, M.D., C. Lockard Conley, M.D., and Edyth H. Schoenrich, M.D., Department of Medicine, The Johns Hopkins University and Hospital. The Williams and Wilkins Company, Baltimore, 1955. \$3.00.

This is a concise review and a clinical analysis of 138 patients with systemic lupus erythematosus studied in the Department of Medicine of the Johns Hopkins Hospital. It is republished from *Medicine*, Volume 33, No. 4, December, 1954.

The authors have presented an excellent analysis of the clinical, pathological, and therapeutical aspects of systemic lupus erythematosus. The analysis of the prognosis in systemic lupus erythematosus is the high point of this publication. Unfortunately, the section on treatment is almost out of date because it does not include a discussion of the combined use of antimalarial drugs and steroid therapy.

The authors take the point of view that patients with chronic discoid lupus erythematosus develop systemic lupus erythematosus. This has been a point of controversy in the literature on this subject, but their well-documented material seems to substantiate this point of view.

This book is to be recommended to general practitioners, internists and dermatologists, for an evening's reading time, it provides one with a complete and thorough discussion of all phases of systemic lupus erythematosus.

* * *

PRACTICAL MANAGEMENT OF DISORDERS OF THE LIVER, PANCREAS, AND BILIARY TRACT—John Russell Twiss, M.D., F.A.C.P., Assistant Professor of Clinical Medicine, and Elliot Oppenheim, M.D., F.A.C.P., Assistant Professor of Clinical Medicine, both of New York University Postgraduate Medical School. Lea & Febiger, Philadelphia, 1955. 653 pages, \$15.00.

This book is written by clinicians for clinical use. It represents an elaboration of the experiences of the physicians and surgeons of the combined Medical and Surgical Biliary Tract Clinic of the New York University Hospital. The authors state that they wish to furnish a practical guide in the diagnosis and management of those disorders of the liver, pancreas and biliary tract most commonly encountered in medical practice. In this they succeed well—although with certain limitations.

The coverage is not uniform: The subject of the liver gets short shrift with 160 pages as contrasted with almost 210 for the gallbladder and extrahepatic tract. On the other hand, this unevenness has its compensations since it is in the latter field that the authors may write with the greatest authority. In previous work they have explored the usefulness of biliary drainage and the examination of the bile as practical diagnostic procedures. And they have collected a large amount of quantitative data which are summarized in this book.

This is by no means an encyclopedic or complete text. However when accepted as a summarization of the authors' experience and views, this volume may be a very useful addition to the library of the physician interested in conditions of the liver, pancreas and biliary tract.

BREAST CANCER AND ITS DIAGNOSIS AND TREATMENT—Edward F. Lewison, B.S., M.D., F.A.C.S., Assistant Professor of Surgery, Johns Hopkins University School of Medicine. The Williams and Wilkins Company, Baltimore, 1955. 478 pages, \$15.00.

Cancer of the breast remains by far the most common organ site cancer of mankind. Long before the days of Saint Agatha, Hippocrates referred to diseases that could not be cured by medicine, by the knife or even by fire, and all too often "hard tumors in the breast" fell into this group. The martyrdom of Saint Agatha included torture and traumatic bilateral mastectomy. She survived this ordeal, dying in Italy in the third century. The author of this interesting monograph discusses these and other interesting phases of the history of breast cancer in his opening chapter.

There are then chapters on the surgical anatomy of the breast by Richard S. Handley, the physiology of the breast by Frances H. Trimble and the pathology of the breast by Robert C. Horn.

There are extensive sections on diagnosis and prognosis, and numerous chapters dealing with radical surgery. There are well written chapters on the present status of radiotherapy in breast cancer, hormone therapy, and the apparent value of self-examination of the breast. Finally, there are sound chapters on the statistics of breast cancer, and the behavior and treatment of mammary cancer in the male.

The author illustrates the fact that the classical radical mastectomy of Halsted was designed to cure patients with breast cancer which had spread only to the removable axillary nodes—it could not cure those with internal mammary nodes or infraclavicular spread. The researches of Handley and others indicate that the number of patients who have lymphatic metastases limited exclusively to the axilla is unfortunately small, perhaps 14 per cent of an average unselected series of patients suitable for consideration of radical mastectomy. There is a chapter by Jerome Urban on ultraradical mastectomy, designed to remove the internal mammary nodes plus the axillary nodes en bloc with the primary tumor. This operation is still sufficiently recent to prevent any significant number of five year survival cases being presented.

The procedure of attempted supraclavicular and cervical lymph node dissection en bloc with the other two lymphatic drainage areas of the breast is given scant consideration, presumably because the author agrees with Haagensen and others that such procedure is not life saving and is frequently incapacitating.

There are chapters on postoperative care and rehabilitation, and postoperative arm swelling. The incidence of lymphedema of the arm following radical mastectomy is given as ranging from 8 to 80 per cent; the percentage with really disabling edema appearing to be in the vicinity of 5 per cent.

The author refers to his own experience at Johns Hopkins with a series of 255 female inpatients with breast cancer, 220 of whom were treated surgically (204 by radical mastectomy). The five year survival rate in this group was 43 per cent, and the five year clinical cure rate 38 per cent. The ten year survival rate was 29 per cent. Approximately one-half of the patients had radiotherapy in conjunction with the radical surgery (preoperative radiotherapy to 40 patients and postoperative to 60 patients). The absolute five year cure rate in the entire group of cases was 32 per cent, a figure comparable with that of the best surgical clinics in the United States.

The chapter on statistics is a useful one and should help the reader to distinguish clearly between the four types of data commonly published in connection with the treatment of cancer, namely (a) relative and (b) absolute survival data, and (c) relative and (d) absolute cure data. Survivals are those living at a specified time after treatment; "cures" are those clinically free of disease at such times. Relative

rates are based on those treated or followed, absolute rates are based on all cases seen.

The section on radiotherapy was written by Vincent P. Collins. The relative advantages of radical mastectomy alone, and simple mastectomy plus radical postoperative radiotherapy (McWhirter technique) are outlined. The following treatment policy is suggested in this section of the book:

Stage I cases (tumors localized to the breast): Radical mastectomy or simple mastectomy plus postoperative radiotherapy.

Stage II: Radical mastectomy and postoperative radiotherapy, or simple mastectomy and postoperative radiotherapy.

Stage III (and those stage II cases with proven internal mammary or supraclavicular node metastases): Simple mastectomy and postoperative radiotherapy, or if the metastases are extensive or the patient refuses surgery, radiotherapy alone.

Stage IV (and those patients in other stages who refuse or are unsuitable for operation): Radiotherapy.

The recent evaluation of McWhirter's method by L. V. Ackerman is discussed. The author notes that Ackerman validated 98 per cent of the Edinburgh cases as being mammary cancer. He refers to the fact that there is "no marked or significant difference between the challenging survival rate achieved by McWhirter and the five year survival rate of superior surgical clinics elsewhere. Although the prejudices of doubt are often difficult to dissipate, it is clearly evident that the five year survival rates reported by McWhirter are equal to any achieved by the accepted procedure of a classical Halsted radical mastectomy, with or without radiotherapy." He fears that many of the five year results of simple mastectomy cum radiotherapy are not in fact cured. Also, a similar comment could apply to radically operated cases. The statistics published in this book confirm the fact that of patients "cured" for five years by radical surgery, almost one-third will be dead of their cancer before ten years. The fact is that the ultimate number clinically cured by any method known today is probably close to only 10 per cent.

The book is excellently illustrated, well printed and adequately indexed. Its relatively impartial and philosophic tone may be indicated by this quotation from Wilfred Trotter: "Progress of knowledge is directly proportional to the closeness of the relation of the enquirer and the facts." Whatever we think of the statistical facts or wish them to be, they nevertheless represent the results of our accumulated experience, "that chill touchstone whose sad proof reduces all things from their hue."

* * *

COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION—Volume XLVI—1954—Edited by Richard M. Hewitt, B.A., M.A., M.D. and others. W. B. Saunders Company, Philadelphia, 1955. 843 pages, \$12.50.

This well known publication presents in one volume some 629 articles published between December 1953 and November 1954. About one-fourth of the papers are complete or are published in abridged or abstract form, while the remainder are mentioned by title only. The material is divided into sections and in some instances almost constitutes a current review of the specialty. Thanks to careful indexing, the experience of the Clinic in a given field or the work of individuals may be quickly obtained. There are review articles by authorities such as Barker on anticoagulants, Bagen on drug therapy of ulcerative colitis, Priestley on surgical treatment of duodenal ulcer, and many others. This book should be available to general physicians and specialists alike, for perusal or for their libraries for future reference.

PREMATURE INFANTS—A Manual for Physicians—Second Edition—Ethel C. Dunham, M.D., Formerly Associate Clinical Professor of Pediatrics, Yale University School of Medicine; Director, Division of Research in Child Development, U.S. Children's Bureau, Paul B. Hoeber, Inc. 49 East 33rd Street, New York 16, N.Y., 1955. 459 pages, \$8.00.

This book is statistically weighted and this with an international flavor. It abounds in charts, tables and figures. There are many paragraphs which are the direct quotation of the opinions and experiences of others. Of the 459 pages in the book, there are 43 pages of references. Instead of being labeled a hand book, it should be classified as an encyclopedia of information concerning premature infants. The "amateur" trying to find a method of care for the premature, would be confused by the multitude of opinions and methods. The "expert" would be pleased with the amassed statistical data.

The book is divided into four parts. *Part one:* General Considerations. *Part two:* Clinical Considerations, where the bulk of the part is given over to abnormal conditions that affect, not only the premature, but any newborn. *Part three:* Public Health Considerations. *Part four:* This is an appendix of 43 pages, which is largely a plan to develop uniform statistics, plus some technical portions, such as technique of feeding and foot printing.

* * *

THE PHARMACOPEIA OF THE UNITED STATES OF AMERICA (THE UNITED STATES PHARMACOPEIA)—Fifteenth Revision U.S.P. XV—By Authority of The United States Pharmacopeial Convention, Inc. meeting at Washington, D.C., May 9 and 10, 1950. Official from December 15, 1955. 1178 pages, plus 52 pages of U.S.P. Convention information, \$10.00. Distributed by Mack Publishing Co., Easton, Pa.

The current edition (XV) of the United States Pharmacopeia will become "official" from December 15, 1955 on. The Pharmacopeia is now being revised on a five year basis, a reflection of the dynamic state of introducing new drugs. A considerable number of physicians and related scientists have participated in the preparation of this revision.

As a departure from past editions, the Category Dose (usual and range), and indication for External Use (if applicable) are given for each agent.

The number of new additions (drugs) still exceeds the deletions by 242 to 160. Unfortunately, one finds archaic carry-overs, such as ipecac, zinc stearate, boric acid, ammoniated mercury, clove oil, coal tar and aloe, are still included for no justifiable pharmacologic reason. Fortunately, English is the preferred title of each drug monograph, Latin having finally been relegated to second choice.

Most useful to pharmacists and laboratory workers is the section on general tests, processes and apparatus. The physician will find U.S.P. XV a valuable source of information on 838 drugs now approved by unbiased, essentially non-commercial reference sources.

* * *

PROCTOLOGIC ANATOMY—Second Edition—R. V. Gorsch, A.B., M.D., F.I.C.S., F.A.P.S., D.A.B.P., Clinical Professor of Proctology, New York Polyclinic Medical School. The Williams and Wilkins Company, Baltimore, 1955. 310 pages, \$8.00.

This is a small book on proctologic anatomy, which is designed to bridge the gap between the essentials of pelvic anatomy and the requirements of the practicing proctologist. It is detailed and directed towards the pure specialist in surgery of this area. It is not an anatomy book which would be of value to one learning anatomy generally. It would be of relatively little use to the average practicing physician and I think it will have a very small select field of usefulness.

In this particular selected area it will be a valuable asset to the practicing proctologist. Unfortunately, the practicing proctologist who has spent sufficient time mastering his field will have garnered the essentials of this book in a more clinical way and will hardly require review of his anatomy in this particular fashion.

The illustrations are clear and semidiagrammatic in large measure with a few halftones. It is a book which would be valuable in giving a rapid course in proctology or one who wishes to learn anatomy of this area in a small, well done text. It is not a book which can be generally recommended to physicians for any good general anatomy book will contain all the information the average physician needs to know in this area and will be of wider usefulness to him.

* * *

TEXTBOOK OF ENDOCRINOLOGY—Second Edition—Edited by Robert H. Williams, M.D., Executive Officer and Professor of Medicine, University of Washington Medical School. W. B. Saunders Company, Philadelphia, 1955. 776 pages, 175 figures, \$13.00.

This book is a modern discussion and evaluation of endocrinology, based on physiological and pathological precepts, which tends to disregard the eponyms and curiosities of endocrinology with which this subject was all too long associated. The first edition was highly recommended (CALIFORNIA MEDICINE, November 1950) and the same praise is extended to the second.

The revision brings up to date the diagnosis and treatment of the endocrinopathies and the use of hormone therapy in nonendocrine disorders. A large portion of the book has been rewritten, especially the chapters on the adrenals, ovaries, pancreas, parathyroid, neuroendocrinology and obesity. A new chapter has been added at the end of the book, summarizing principles of diagnosis and treatment and giving examples of the most useful hormone preparations.

A few minor criticisms can be made. For example, the new chapter would be made more practical by the inclusion of usual dosages and by detailing some of the trade names with their relative values. After rightfully decrying most height-weight tables, the author of the chapter on obesity falls into a like trap by recommending a table which measures women with shoes on (whether with flat or three-inch heels we do not know)!

Endocrinology is an extremely rapidly advancing field of medical science. Several thousand papers are published annually. This book does an excellent job of bringing the subject up to mid-1955 for the benefit of doctors and students alike.

* * *

THE BODY FLUIDS—Basic Physiology and Practical Therapeutics—J. Russell Elkington, M.D., Associate Professor of Medicine, University of Pennsylvania School of Medicine, and T. S. Danowski, M.D., Rensiehausen Professor of Research Medicine, University of Pittsburgh School of Medicine. The Williams and Wilkins Company, Baltimore, 1955. 626 pages, \$10.00.

The basic field of medicine with which this book deals is pertinent to clinical problems in all fields of medicine from ophthalmology to urology, from internal medicine to abdominal surgery or from obstetrics to pediatrics, as problems relating to the body fluids arise in all.

Students and physicians alike will find in it a great deal of information which will help both in understanding and treating many disorders dealt with daily in seeing patients; disorders, which in medical vernacular are called problems in "fluid, water, electrolyte, acid-base and/or osmotic" equilibria or metabolism. Researchers will find a great deal of well selected data and a very complete bibliography.

While admittedly knowledge is changing and still being rapidly acquired in this field, this is the most complete

and up-to-date book which has been written on the subject. A tremendous amount of information has accumulated on the subject and it is good to have it assembled in an orderly way so that the "lay" doctor or student not specializing in the field may gain access to it.

In this field of medicine, appropriate pursuit of therapy requires a rational approach based upon the use of measurements, made in the chemical and physiological laboratory. In dealing with the complex problems with which this volume is concerned, there is little place for medical intuition which makes but a meager showing in the "race" of modern medicine. One will find this book valuable whether one's interest be disturbances of heart, kidneys, lungs, or liver; toxemia of pregnancy or diarrhea of the newborn; neuro or abdominal postsurgical care; diabetes mellitus or the use of corticoids; glaucoma or periodic paralysis. The information available in this book should be of great value to the physician in improving medical care.

* * *

MEDICAL PROBLEMS OF OLD AGE—A. N. Exton-Smith, M. A., M.D. (Cantab.), M.R.C.P., Physician Whittington Hospital, London. John Wright & Sons, Ltd., Bristol. Distributed in U.S.A. by Williams and Wilkins Company, Baltimore, 1955. 331 pages, \$7.00.

Healthy old age should be a normal process of involution free from morbid change. The approach to the maintenance of health requires an understanding of the influences which promote it, as well as the investigation of factors concerned with the development of disease and the possibilities of their amelioration. The assessment of health and of disease should be made on functional capabilities rather than on structural changes or disorders of metabolism.

Dr. Exton-Smith is concerned with the maintenance and restoration of these functional capabilities in aged people. He writes with sympathy, insight and knowledge of his subjects. He has gathered together the facts known about the symptoms, signs, diagnosis and treatment of the aged and produced a complete yet still small volume.

The first 100 pages are probably the most valuable. In these he discusses the clinical implications of aging, the principles of diagnosis, practical consideration in home care, principles of rehabilitation in the elderly and particularly in hemiplegia, and other problems in medical and nursing care.

The last 10 chapters, comprising some 215 pages, cover the problems of surgical and medical illness in more or less conventional form.

The reviewer is impressed by the knowledge and sympathy of the author. Functional rehabilitation of the patient is stressed as an end result even more than care of the disease. The entire book is recommended to students and practicing physicians. The first part can also be of great use to nursing home operators, social service workers and others in auxiliary medical professions, as well as the physicians.

* * *

CARDIOVASCULAR SURGERY—Studies in Physiology, Diagnosis and Techniques—Henry Ford Hospital, International Symposium—Edited by Conrad R. Lam, M.D., Surgeon-in-Charge, Division of Thoracic Surgery, Henry Ford Hospital. W. B. Saunders Company, Philadelphia, 1955. 543 pages, \$12.75.

This impressive volume provides in palatable form for easy readability the most recent advances in cardiac surgery discussed at length at an International Symposium on Cardiovascular Surgery held under the auspices of the Ford Hospital at Detroit in March, 1955. Participating in the discussions

were such eminent cardiac surgeons as Sir Russell Brock of Guy's Hospital, London, Clarence Crafoord of Stockholm, Charles Dubost of Paris, John Lind of Stockholm, Charles Rob of London, and Sondergaard of Copenhagen besides a host of eminent American surgeons and internists. Individual presentations numbered 31 covering such topics of general interest as cardiac catheterization, angiocardiology, evaluation of transposition operations, the surgical treatment of mitral stenosis and mitral insufficiency, and of aortic stenosis and aortic insufficiency. Panel discussions permitted contributions from many sources on such varied subjects as the diagnosis and treatment of pulmonic stenosis and of interatrial septal defects; the late results of mitral commissurotomy; the advantages and disadvantages of various methods of inducing hypothermia; and finally an evaluation of the available substitutes for arterial segments.

Lillehei and associates presented their brilliant successes with crossed circulation in the repair of interventricular septal defects, isolated infundibular pulmonic stenosis, tetralogy of Fallot, and atrioventricularis communis. It is highly probably that direct intracardiac surgery with the aid of hypothermia and extracorporeal circulations of various types will undergo a rapid development in the next year or two.

No one interested in cardiovascular diagnosis and the present status of cardiovascular surgery can afford to be without this volume of varied and specific information on many subjects of interest to internist and surgeon alike.

* * *

THE THYROID—A Fundamental and Clinical Text—Edited by Sidney C. Werner, M.D., Sc.D. (Med.), Editor. With Sixty Contributors. Paul B. Hoeber, Inc., Medical Department of Harper & Brothers, New York, 1955. 789 pages, \$20.00.

Almost encyclopedic, as its length might indicate, this book has been made quite readable with the material divided into many small sections with frequent subtitles. These headings and the indexing make this book simple to use for reference work.

Ordinarily one might be discouraged at the thought of sixty contributors for fear of contradiction and reduplication. The editing of the material has been a monumental work, and the book does read as if by one author. There are many references for the most part 1952-53 or earlier; this suggests a considerable delay in publication which is understandable in view of the tremendous editing task. Some recent work is presented however such as the lack of inhibition of I^{131} uptake by exogenous thyroid substance in Grave's disease in contrast to the normal gland, which might prove of practical importance in the diagnosis of hyperthyroidism.

The book is divided into three parts, the first on the physiology and anatomy of the normal gland, the second on laboratory methods and the third, which makes up three-fourths of the book, on diseases of the thyroid. Hyperthyroidism and hypothyroidism are in part covered in a detailed review of body systems of the two conditions. There are introductory comments in some sections by the editor and frequent summaries at the end of the chapters aid in quick appraisal of the material.

With the multiple contributors, new editions might be expected to appear at frequent intervals keeping the material up to date. This book will probably be the standard text on thyroid disease for some time to come. It should be available to all having contact with the thyroid—surgeons, physicians, physiologists and laboratory workers.

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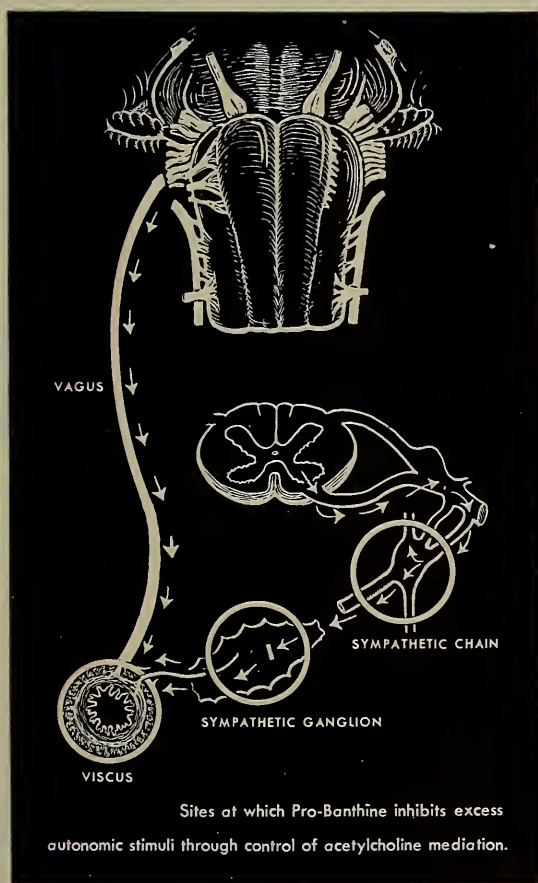
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1. Schwartz, I. R.; Lehman, E.; Ostrove, R., and Seibel, J. M.: *Gastroenterology* 25:416 (Nov.) 1953.
2. Roback, R. A., and Beal, J. M.: *Gastroenterology* 25:24 (Sept.) 1953.

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Federal Medical Spending for Fiscal Year 1956

(Continued from Front Advertising Section, Page 46)

function of Interior Department. The total is broken down as follows: hospital care in Indian hospitals, \$19,090,000; contract patient care, \$8,113,000; field health services, \$4,490,000; program direction and management services, \$1,897,000; survey of needs, \$250,000; construction of hospitals, clinics and quarters, \$5,000,000.

Office of Vocational

Rehabilitation \$36,825,000
Last Year: \$28,735,000

Under the expended vocational rehabilitation act (Public Law 565, 83rd Congress) Congress this year voted \$33,750,000 for grants to states. This is divided as follows: (a) support of basic rehabilitation services including medical examinations, surgical and therapeutic treatment, hospitalization, prostheses, occupational tools and aids, vending stands, rehabilitation facilities, vocational training and funds for maintenance (based on per capita income and populations as in Hill-Burton) \$30,000,000; (b) extension and improvement of state programs, \$1,500,000; (c) special projects (2-1 federal-state matching), \$2,250,000. In addition, \$2,075,000 is available for training of rehabilitation personnel, including physicians, therapists, psychologists, counselors,

medical and psychiatric social workers (\$500,000 of which is on a 2-1 federal-state matching basis and \$400,000 on no prescribed matching basis) and \$1,000,000 for federal administrative costs.

Hospitals and Medical Care \$34,326,000
Last Year: \$33,000,000

These funds are used for operational cost and maintenance of PHS hospitals and health services in caring for American seamen, Coast Guard and Public Health Service personnel and their dependents, federal employees injured at work, leprosy patients and narcotic addicts; includes studies in the development and coordination of nursing resources. It also includes \$1,000,000 for grants to Hawaii for care of patients suffering from leprosy.

Children's Bureau \$35,796,600
Last Year: \$31,600,000

Operating under the Social Security Administration, the Children's Bureau administers grants to states for maternal and child health, crippled children's and child welfare services. This year grant money totals \$34,156,000 divided as follows: \$11,927,700 for maternal and child health work, with the states required to spend 50 cents for each federal dollar; \$15,000,000 for crippled children's services, same matching requirement; and \$7,228,900 for child welfare services, where the only matching re-

(Continued on Page 66)

For TRIPLE SULFA

THERAPY
in ALL AGE
GROUPS



...SAFE—PLEASANT TO TAKE
...ACCURATE DOSAGE
...BUFFERED and VISCOLIZED
...WILL NOT SEPARATE

BUFFONAMIDE

TRIPLE SULFA SUSPENSION

TASTY, CHERRY FLAVOR and COLOR—ECONOMICAL!

There is no safer or more effective sulfonamide available! Extensive clinical trials show that triple sulfas (BUFFONAMIDE) have outstanding therapeutic efficiency among sulfa drugs.

Each Teaspoonful (5 cc.) Provides:

Sulfadiazine	0.166 gm.
Sulfamerazine	0.166 gm.
Sulfacetamide	0.166 gm.
BUFFERED with Sodium Citrate	0.5 gm.

At Pharmacies Everywhere!

Handy 2 oz. Dispenser Pints or Gallons

BUFFONAMIDE ASSURES:

- Widest possible antibacterial spectrum for sulfonamides.
- Highest blood level... Safely and quickly
- Maximum potency in smallest dose
- Minimal side effects



S. J. Tutag and Company

19180 Mt. Elliott Avenue • Detroit 34, Michigan



how you can shorten convalescence in adults

While 'Trophite' was developed to increase appetite in below-par children—and thus increase growth—it has also proved extremely useful in convalescent adults.

That is because 'Trophite' not only improves appetite but also promotes the proper utilization of food. Studies with B₁₂ emphasize "the importance of adequate supplies of this vitamin in the metabolism of carbohydrate and fat, including not only the conversion of carbohydrate to fat, but the metabolism of fat itself." (Editorial, J.A.M.A. 153:960)

In addition to B₁₂, 'Trophite' contains B₁ whose value in combating anorexia is established. Try 'Trophite' in your next convalescent—and see how quickly he is up and about. 'Trophite' is available both as tablets and as a truly delicious liquid. Each tablet or teaspoonful (5 cc.) supplies: 25 mcg. B₁₂, 10 mg. B₁.

the high potency combination of B₁₂ and B₁

Trophite^{*} *for* appetite

*T.M. Reg. U.S. Pat. Off.

Smith, Kline & French Laboratories, Philadelphia

Consultants Answer Various Queries

(Continued from Front Advertising Section, Page 50)

There is probably little or no danger from the breakage of a selenium rectifier, a device used in television sets and radios. The rectifier contains the chemical element selenium, the fumes of which can be dangerous in large doses. But the objectionable odor, ordinary home ventilation, and the brief exposure periods all help to lessen the danger from the accidental burning out of selenium rectifiers in home radio and TV sets, he said.

One consultant, in explaining the proper usage of the word "clinic," said it sometimes applies

to free dispensaries and sometimes to a teaching session in which patients are used. But it most commonly means the "pooled efforts and facilities of several physicians practicing together as a group."

The penicillin now being processed is not made from mold derived from the original one of Dr. Alexander Fleming, penicillin's discoverer.

The original penicillin was derived from one strain of the mold, but other strains now are being used because they give a higher yield of penicillin. Experimental work is being carried on to isolate and develop new strains that will produce still higher yields.

THE NEW YORK POLYCLINIC

MEDICAL SCHOOL AND HOSPITAL

(Organized 1881 • The Pioneer Post-Graduate Medical Institution in America)

EYE, EAR, NOSE AND THROAT

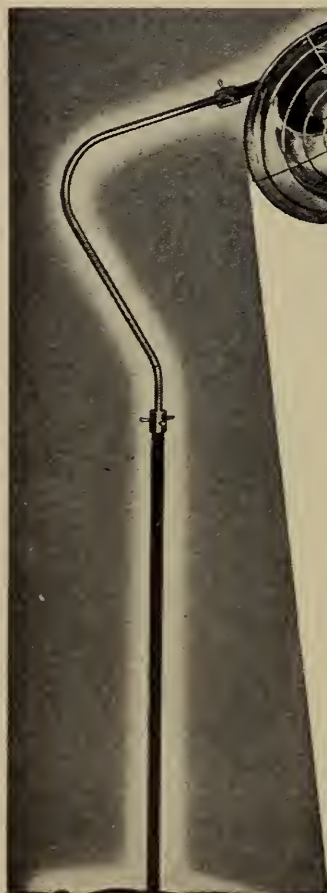
A three months combined full time refresher course consisting of attendance at clinics, witnessing operations, lectures, demonstration of cases and cadaver demonstrations; operative eye, ear, nose and throat on the cadaver; clinical and cadaver demonstrations in bronchoscopy, laryngeal surgery and surgery for facial palsy; refraction; radiology; pathology, bacteriology and embryology; physiology; neuro-anatomy; anesthesiology; physical medicine; allergy, as applied to clinical practice. Examination of patients preoperatively and follow-up postoperatively in the wards and clinics. Attendance at departmental and general conferences.

FOR INFORMATION ABOUT THESE
AND OTHER COURSES ADDRESS:

PRACTICAL ELECTROCARDIOGRAPHY

A two weeks part time elementary course for the practitioner based upon an understanding of electrophysiologic principles. Standard, unipolar and precordial electrocardiography of the normal heart. Bundle branch block, ventricular hypertrophy, and myocardial infarction considered from clinical as well as electrocardiographic viewpoints. Diagnosis of arrhythmias of clinical significance will be emphasized. Attendance at, and participation in, sessions of actual reading of routine hospital electrocardiograms.

THE DEAN, 345 West 50th Street, New York 19, New York



Recommend with
Confidence McCall's
Desert-Air* Lamps
AS AN AID FOR

RELIEF

**FROM COLDS • COUGHS • SINUSITIS
BRONCHITIS • HAY FEVER • ASTHMA**

• The Desert-Air* Lamp offers proven relief from symptoms of coughs, head colds, bronchitis, also from paroxysms of hay fever and asthma by reducing the relative humidity and creating mild, warm air in the sleep zone. Its dark burning, safe lava unit allows infants and adults to breathe more easily. Recommend McCall's Desert-Air* Lamps today for home use.

DESERT-AIR* LAMPS ARE SOLD AT DRUG STORES, HOSPITAL SUPPLY HOUSES, AND ALL REPUTABLE SURGICAL AND HEALTH APPLIANCE DEALERS



Serving the Medical Profession since 1931. Free Delivery. Low Rental—\$10.00 monthly-rental applies to purchase price. Refuse imitations. Insist on McCall's Desert-Air* Lamps.

McCALL'S Desert-Air* LAMPS

*TRADE MARK REG. U. S. PAT. OFFICE

Joseph Chiarello, Ph.G. • Phone HOLlywood 4-7116 • 1518 N. Western Ave. at Sunset • Los Angeles 27
Telephone LAkehurst 2-3232 • 1223 Park Street • Alameda, Calif.

*A safe,
healthful
zone of
mild,
warm air*

Yes, you can have Real Tobacco *Taste in a Filter Cigarette!*



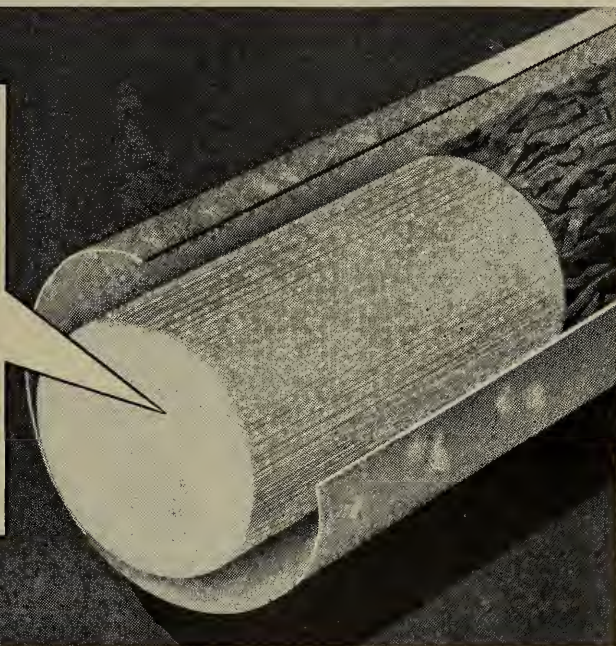
The VICEROY filter tip contains 20,000 tiny filters made exclusively from pure, white cellulose. This is twice as many as the next two largest-selling filter brands.

No wonder VICEROY gives you that fresh, clean, real tobacco taste you miss in other filter brands. No wonder so many doctors now smoke and recommend King-Size VICEROYS.

ONLY VICEROY GIVES YOU

20,000 Tiny Filters-

**TWICE AS MANY AS THE
NEXT TWO LARGEST-SELLING
FILTER BRANDS... FOR
REAL TOBACCO TASTE!**



*King-Size
Filter Tip* **VICEROY**



World's Most Popular Filter Tip Cigarette
Only a Penny or Two More
Than Cigarettes Without Filters

Federal Medical Spending for Fiscal Year 1956

(Continued from Page 58)

quirement is that states must supply some money. In addition the Children's Bureau has \$1,640,000 to finance investigating and reporting activities and to administer the grants.

Poliomyelitis Vaccine Program \$30,000,000
(New category)

Under Public Law 377 approved by Congress this year, a total of \$30,000,000 is available to states on an outright grants basis for helping set up programs for vaccination of children under 20 and

pregnant women against poliomyelitis. The sum of \$25,000,000 is earmarked for purchase of vaccine and \$5,000,000 for planning and conducting vaccination services or for buying vaccine.

Assistance to States—General \$18,160,000
Last Year: \$13,000,000

Grants totaling \$14,225,000 will be available for apportionment to the states in support of state and local general public health activities. Of this total, \$4,500,000 is for assistance to states in administering polio vaccine programs. These grants must be matched one state dollar for every two federal dol-

(Continued on Page 70)

THE POTTENGER SANATORIUM and CLINIC

For Diseases of the Chest

Monrovia, California

AN INSTITUTION FOR DIAGNOSIS AND THERAPY
(Established 1903)

CHOICE ROOMS and BUNGALOWS. Rates moderate and include routine medical and nursing services, interim physical, x-ray and laboratory examination, ordinary medicines and treatments.

In the foothills of the Sierr Madre Mountains, thirty-five miles from the ocean. Surrounded by beautiful gardens.

Twenty-four hour medical and nursing care.

For particulars address:

600 North Canyon Blvd., Monrovia, California

Elliott 8-4545



Garden Grove SANITARIUM

General Conditions,
Nervous Disorders

RICHARD A.
CARTER, M.D.,
Director

ACUTE • CHRONIC • CUSTODIAL

Outstandingly Beautiful Gardens
and Appointments

Established 1940

• 10471 Garden Grove Boulevard
Garden Grove, California
25 MINUTES FROM LOS ANGELES

COOK COUNTY Graduate School of Medicine

INTENSIVE POSTGRADUATE COURSES

STARTING DATES—WINTER-SPRING, 1956

SURGERY—Surgical Technic, Two Weeks, February 6, February 20.

Surgical Anatomy & Clinical Surgery, Two Weeks, March 5.
Surgery of Colon and Rectum, One Week, February 27, April 9.

General Surgery, One Week, February 13, Two Weeks, April 23.

Basic Principles in General Surgery, Two Weeks, April 9.

Gallbladder Surgery, Ten Hours, April 9.

Fractures and Traumatic Surgery, Two Weeks, March 12.

GYNECOLOGY—Office and Operative Gynecology, Two Weeks, February 13, March 12.

Vaginal Approach to Pelvic Surgery, One Week, February 6, March 5.

OBSTETRICS—General and Surgical Obstetrics, Two Weeks, February 27, March 26.

MEDICINE—Internal Medicine, Two Weeks, May 7.

Electrocardiography and Heart Disease, Two-Week Basic Course, March 12.

Gastroscopy, Forty-Hour Course, March 19.

Dermatology, Two Weeks, May 7.

RADIOLOGY—Diagnostic X-Ray, Two Weeks, February 6, April 30.

Clinical Use of Radioactive Iodine, One Week, April 2.

Clinical Uses of Radioisotopes, Two Weeks, May 7.

PEDIATRICS—Intensive Review Course, Two Weeks, May 14.

Neurological Diseases: Cerebral Palsy, Two Weeks, June 18.

UROLOGY—Two-Week Course, April 16.

Cystoscopy, Ten Days, by appointment.

TEACHING FACULTY—ATTENDING STAFF OF
COOK COUNTY HOSPITAL

Address: REGISTRAR, 707 South Wood Street,
Chicago 12, Illinois

No other single medication can
**HELP YOUR ANGINAL
PATIENTS**

in all these 7 ways

Pentoxylon®

LONG-ACTING TABLETS CONTAINING PENTAERYTHRITOL TETRANITRATE (PETN) 10MG. AND RAUWILOID® (ALSEROXYLON) 1MG.

- Reduces incidence and severity of attacks
- Increases exercise tolerance
- Reduces tachycardia
- Reduces anxiety, allays apprehension
- Reduces nitroglycerin need
- Lowers blood pressure in hypertensives —not in normotensives
- Produces objective improvement demonstrable by ECG

Dosage: One to two tablets q.i.d.
before meals and on retiring.



LOS ANGELES

Federal Medical Spending for Fiscal Year 1956

(Continued from Page 66)

lars. An additional \$3,935,000 supports direct activities of the U. S. Public Health Service in providing technical assistance, consulting services to states, expenses of the National Office of Vital Statistics, international health activities, demonstrations, training activities, and operational expenses.

Food and Drug Administration \$6,266,000
Last Year: \$5,202,000

For administering the Federal Food, Drug and Cosmetic Act, Congress voted \$6,266,000, includ-

ing a \$309,000 item for policing the distribution of the Salk polio vaccine during this fiscal year.

Tuberculosis Control \$6,000,000
Last Year: \$6,000,000

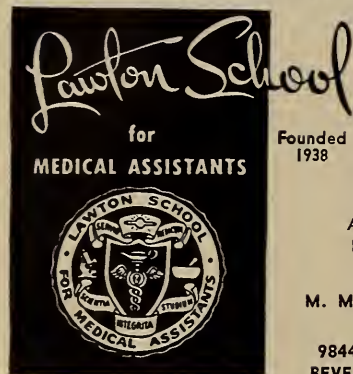
Grants to states for diagnostic and treatment clinics, mass case-finding, and follow-up services account for \$4,500,000, all of which has to be matched equally by the states.

Communicable Disease Control \$5,250,000
Last Year: \$4,300,000

The entire appropriation is used for direct activity of the PHS Communicable Disease Center at

(Continued on Page 74)

Lawton School for Medical Assistants



**TRAINED
TO MEET YOUR
REQUIREMENTS**
Write us when in
need of a qualified
**MEDICAL
ASSISTANT**
•
Founded 1938

Ask us about our
INTERNE PLAN

•
M. Murray Lawton, M.D.
Director

9844 WILSHIRE BLVD.
BEVERLY HILLS, CALIF.

Compton Sanitarium

Established in 1915

320 WEST COMPTON BOULEVARD
COMPTON, CALIFORNIA

NE 6-1185 NE 1-1148

Consultation Service for the Beverly Hills

Area CR 5-2335

G. Creswell Burns, M.D.
Medical Director

Helen Rielow Burns, M.D.
Assistant Medical Director

Max Hayman, M.D.
Clinical Director

**HIGH STANDARDS OF
Psychiatric Treatment**
Accredited by Joint
Commission on Accredi-
tation of Hospitals

Doctor

When you peruse the advertising pages of CALIFORNIA MEDICINE remember this: All advertising is carefully screened by the advertising committee of CALIFORNIA MEDICINE. Our standards are of the highest. The advertisers like our publication—that is why they selected it for use in their promotional programs. They seek your patronage and your response encourages continued use of CALIFORNIA MEDICINE. In turn, the advertisers' patronage helps us to produce our journal. When you send inquiries tell them that you read their advertisement in

California Medicine



an asset to therapeutic diets

Attention to the nutritional requirements of patients effectively supplements medical procedures in helping reduce mortality rates and in shortening convalescence. A state of good nutrition enhances resistance to disease, increases the capacity of tissue for repair, and promotes morale.

Nutritional Advantages

Because of its enrichment and its nonfat milk solids content, the average enriched bread supplies valuable amounts of good quality protein, thiamine, riboflavin, niacin, iron, and calcium. Its protein functions for growth, repair, and maintenance. Its calories help to spare protein for specific protein uses and contribute to energy needs.

The table (right) points up how effectively 6 slices participate in providing good nutrition in illness and convalescence.

Physiologic Advantages

Soft and open in texture, enriched bread is easily masticated and swallowed. It is promptly and thoroughly digested. Its appetizing eating qualities reflexly incite the digestive processes. Producing insignificant amounts of smooth inert residue, it does not irritate the gastric or intestinal mucosa.

Dietetic Advantages

In either fresh or toasted form, enriched bread adds to the eating pleasure of meals. Neutral in flavor, it blends well with other foods. When appetite lags, sandwiches including a wide variety of foods—meat, poultry, eggs, cheese, salad preparations and various spreads—give zest to eating as well as needed nourishment.

These advantages—nutritional, physiologic, and dietetic—establish enriched bread as a valuable asset in therapeutic diets.

Contribution of 6 Slices of Enriched Bread

	Nutrients and Calories	Percentages of Allowances*
Protein	11.7 Gm.	18%
Thiamine	0.33 mg.	22
Niacin	3.0 mg.	20
Riboflavin	0.21 mg.	13
Iron	3.3 mg.	28
Calcium (average)	122 mg.	15
Calories	379	13

*Percentages of daily allowances for 143 lb., 67 in. tall fairly active man of 45. Recommended Dietary Allowances, Washington, D. C., National Academy of Sciences—National Research Council, Publication 302, 1953.

The nutritional statements made in this advertisement have been reviewed and found consistent with current medical opinion by the Council on Foods and Nutrition of the American Medical Association.

AMERICAN BAKERS ASSOCIATION 20 North Wacker Drive • Chicago 6, Illinois

Federal Medical Spending for Fiscal Year 1956

(Continued from Page 70)

Atlanta, Ga., and its affiliated operations, including \$850,000 for work in poliomyelitis. It carries on studies in epidemiology, furnishes laboratory diagnostic services and sponsors special projects to assist states.

Engineering, Sanitation and

Industrial Hygiene \$4,690,000

Last Year: \$3,565,000

Four programs are supported by this appropriation: (a) water supply and water pollution control

through several river basin offices that work with state and interstate agency officials, \$1,160,500 (b) study of effect of radioactive substances on individuals partially in cooperation with the Atomic Energy Commission, \$275,000; (c) general sanitation, consultant services with states on milk and restaurant inspection, garbage disposal, food handling by interstate carriers, etc., \$799,000; and (d) environmental research activities of Cincinnati office including air pollution work, \$2,373,000. Another \$82,500 is for administration.

Venereal Disease Control \$3,500,000

Last Year: \$3,000,000

(Continued on Page 84)



ALUM ROCK SANATORIUM SAN JOSE, CALIFORNIA

Telephone Clayburn 8-4921

A NON-PROFIT HOSPITAL FOR THE TREATMENT OF
TUBERCULOSIS AND CHRONIC PULMONARY DISEASES

VISITING MEDICAL STAFF

MEDICAL DIRECTOR
Buford H. Wardrip, M.D.

ASSOC. MEDICAL DIRECTOR
C. Gerald Scarborough, M.D.

Harold G. Trimble, M.D., Oakland
J. Lloyd Eaton, M.D., Oakland
Gerald L. Crenshaw, M.D., Oakland
Robert B. Stone, M.D., Oakland

Cabot Brown, M.D., San Francisco
Glenroy N. Pierce, M.D., San Francisco
James Kieran, M.D., Oakland
William B. Leftwich, M.D., Oakland

1956 ANNUAL SESSION

April 29-May 2, 1956

AMBASSADOR HOTEL

LOS ANGELES

Plan now to attend

Foot-so-Port Shoe Construction and its Relation to Weight Distribution



- Insole extension and wedge at inner corner of heel where support is most needed.
- Special Supreme rubber heels are longer than most anatomic heels and maintain the appearance of normal shoes.
- The patented arch support construction is guaranteed not to break down.
- Innersoles are guaranteed not to crack, curl, or collapse. Insulated by a special layer of Texon which also cushions firmly and uniformly.
- Foot-so-Port lasts were designed and the shoe construction engineered with orthopedic advice.
- NOW AVAILABLE! Men's conductive shoes. N.B.F.U. specifications. For surgeons and operating room personnel.
- By a special process, using plastic positive casts of feet, we make more custom shoes for polio, club feet and all types of abnormal feet than any other manufacturer.

Write for details or contact your local **FOOT-SO-PORT**
Shoe Agency. Refer to your Classified Directory

Foot-so-Port Shoe Company, Oconomowoc, Wis.

... epileptic



PARKE, DAVIS & COMPANY DETROIT, MICHIGAN

CLASSIFIED ADVERTISEMENTS

(Continued from Page 76)

OFFICES FOR RENT OR LEASE

FOR RENT—LOCATION FOR SPECIALIST in growing community in centrally located Medical Building in suburban metropolitan area of Oakland, California. Excellent opportunity for dermatologist, E.N.T., internal specialist or bone specialist. Reasonable rent. Now available. San Leandro Medical Building Company, 1556 Leonard Drive, San Leandro, California.

FOR LEASE: ORLAND, GLENN COUNTY, CALIFORNIA. Building suitable for offices or clinic, corner location, 4,400 sq. ft. main floor, 2,500 sq. ft. basement, entrances on two streets. Center of business district. Large potential area. For further details and price write P. O. Box 26, Anderson, or telephone EMerson 5-7353.

DUE TO DEATH OF A PROMINENT PHYSICIAN new office is now for rent and equipment for sale. Already a large general practice, if taken immediately. Located in Arcata, California. Good hospital. Fast growing community. Box 91,665, California Medicine.

OFFICES FOR LEASE: Attractive 600 sq. ft. office well laid out for general practice or most specialties. In San Rafael serving fast growing beautiful Marin County. Ground floor. Ample parking. Less than 30c per sq. ft. Box 91,615, California Medicine.

FOR LEASE. Professional suites located on 800 block North Broadway, Santa Ana, California. Will alter to suit individual needs. Box 91,655, California Medicine.

SANTA BARBARA—OFFICE AVAILABLE for one or two doctors in professional building in best professional section of town. Ideal for pediatrician. Will build or modify to suit. On bus line. Own parking lot. Reasonable rent. R. A. King, D.D.S., 1819 State Street, Santa Barbara. Telephone: Woodland 5-1021.

REAL ESTATE FOR SALE

FOR SALE: SANITARIUM—CONVALESCENCE—REST HOME SITE— Close to ocean, 5-bedroom, 5-bath home. Three outbuildings: stables, own water supply, electric pump; all irrigation pipes in, all farm equipment and outside decorations. Seven acres of government supervised seventeen-year-old lemons; five acres many varieties of trees, plus fruit trees; thirty avocado trees. Ten acres of rich meadow land. Most beautiful spot in Orange County—ocean, mountain, river and valley view. Should appraise over \$250,000—can be had for \$135,000. Charlie Dean, 883 South Coast Boulevard. Telephone Hyatt 4-1034, Laguna Beach, California.

Federal Medical Spending for Fiscal Year 1956

(Continued from Page 74)

Of the total, \$1,200,000 goes for direct grants to states for venereal disease detection, treatment and control on a special need basis. Of the remainder, \$2,300,000 is spent to finance technical assistance to the states, mostly to pay federal employees assigned to state health departments.

Foreign Quarantine Service \$3,000,000
Last Year: \$2,900,000

This service operates approximately 250 medical quarantine stations on borders of the United States. It also operates approximately 25 medical examination stations on foreign soil for the examination of aliens seeking visas to enter the United States. Inspections are made of all seagoing vessels and aircraft entering the United States.

Office of the Surgeon General \$2,762,000
Last Year: \$2,780,000

For administrative expenses of this office, including all housekeeping services, evaluation of public health needs, and personnel training.

Alaska—Disease and Sanitation

Investigations and Control \$1,125,000
Last Year: \$1,125,000

This appropriation will be divided as follows: \$638,000 for grants to the Territory for public health services and the remainder for research activities of the Arctic Health Research Center at Anchorage.

Reimbursable Health Program for

Other Governmental Agencies \$321,800
Last Year: \$261,000

This represents the cost of services expected to be advanced by Public Health Service to other governmental agencies for establishing and operating on-the-job clinics. As a total, however, it is misleading, as a substantial number of government agencies carry on their own health programs independent of PHS. PHS deals largely with Washington personnel, whereas 90 per cent of the government's employees are located outside of Washington.

FEDERAL CIVIL DEFENSE ADMINISTRATION

(This Year: \$30,450,000—Last Year: \$28,755,000)

Out of a FCDA budget of \$56,350,000, the agency plans to spend the following: \$28,500,000 for medical supplies and equipment wholly owned by the federal government, \$1,700,000 for matching funds to the states to help them in medical supply stockpiling, and \$250,000 for administering the two programs.

ATOMIC ENERGY COMMISSION

(This Year: \$27,700,000—Last Year: \$26,800,000)

The Atomic Energy Commission's appropriation for this year is \$1,511,000,000. Out of this total, \$27,700,000 is available to the Division of Biology and Medicine for research projects. They include cancer, \$2,651,000; other medical \$8,629,000; biological, \$9,839,000; biophysical, \$5,307,000. Vocational and special training accounts for \$474,000 and radioisotope distribution, \$800,000.

INTERNATIONAL COOPERATION ADMINISTRATION

(This Year: \$25,441,000—Last Year: \$31,137,900)

Technical Assistance Programs \$20,141,000
Last Year: \$16,925,000

Under the International Cooperation Administration, U. S. funds are given underdeveloped countries for training and demonstration aimed at eventually setting up national and local health services. The recipient nations, in turn, make varying contributions in cash, facilities and services. The U. S. total is broken down as follows: Near East, Africa and South Asia (15 countries), \$5,211,000; Far East and Pacific (8 countries), \$9,196,000; Latin America (22 countries), \$5,734,000.

Development Assistance Program \$ 5,300,000
Last Year \$14,212,000

For emergency health programs, principally malaria control, ICA has earmarked \$4,000,000 for the

(Continued on Page 88)

Betasyamine[®] . . . for a fresh outlook . . .
in your "well" patients who feel sick.

These are your patients: Prominent in your practice are those patients not demonstrably ill, but always below par — mentally, physically, emotionally. These are your "problem patients." How to treat them? Hirsch¹ has furnished a clue. He points out an ever present condition:

"... a depletion of energy up to or beyond
the body's ability to spring back."

The fatigue syndrome is often linked with subnormal muscle and nerve phosphocreatine readings.² Betasyamine contains betaine and glycocyamine, precursors of phosphocreatine. Containing no unphysiologic sedative or stimulant drug, Betasyamine offers promise wherever increased burdens and strains have undermined the energy reserve.

Fatigue and depression frequently result from the rigid therapeutic and dietary programs required in diabetes, allergy and obesity management. Difficult postsurgical and obstetrical periods — prolonged infectious sieges — keep patients discouraged and debilitated — unable to "spring back." Betasyamine, included in the recovery programs of these and many other conditions characterized by low energy states, provides welcome relief from depressing and taxing exhaustion. Betasyamine helps to create a new mood . . . for a fresh outlook.

Average Dosage: 3 Effervescent Pockets; 3 tablespoonfuls Emulsion; or 15 Tablets (three times daily at mealtimes).
Supplied: Effervescent Packets (new) — 24's; Emulsion — 16 fl.oz.; Tablets — 200's.

1. Hirsch, S.: New York J. Med. 55:1170 (April 15) 1955. 2. Dixon, H. H., and others: West. J. Surg. 60:327 (July) 1952.

Amino Products Division • International Minerals & Chemical Corporation • Chicago • San Francisco

for a fresh outlook

Federal Medical Spending for Fiscal Year 1956

(Continued from Page 84)

Far East, \$800,000 for Latin America and \$500,000 for the Near East, South Asia and Africa.

DEPARTMENT OF STATE

(This Year: \$13,669,790—Last Year: \$12,607,667)

United Nations Children's Fund \$9,000,000
Last Year: \$8,300,000

The U. S. share of the Fund, formerly known as the International Children's Emergency Fund, is \$9,000,000, or about 60 per cent of anticipated contributions coming from some 65 countries. The

Fund in 1954 treated 1,500,000 children for yaws and vaccinated 13,000,000 against tuberculosis. Currently the Fund is aiding about 250 health and medical projects for children in 92 countries and territories.

World Health Organization \$3,349,790
Last Year: \$2,987,667

For the first time since 1950, U. S. share of WHO's total budget has gone above \$3,000,000. Late in the first session of the 84th Congress, the Mutual Security Act was amended to remove the statutory ceiling of \$3,000,000. Congress at the same

(Continued on Page 92)

ALEXANDER SANITARIUM INCORPORATED

LOCATED IN THE FOOTHILLS
OF BELMONT, CALIFORNIA

Address Correspondence:

MRS. ANNETTE ALEXANDER, President

Alexander Sanitarium

Belmont, Calif. • LYtell 3-2143

A patient accepted for treatment may remain under the supervision of his own physician if he so desires.

The Alexander Sanitarium is a neuropsychiatric open hospital for treatment of emotional states. Treatment consists of electric shock, hydrotherapy, insulin shock-therapy, psychotherapy and occupational therapy. Conditioned reflex treatment for alcoholism.

Occupational facilities consist of special occupational therapy room, tennis court, billiards, badminton court, table tennis and completely enclosed, heated, full-size swimming pool.

Six Psychiatrists in Attendance:

JOHN ALDEN, M.D.

Chief of Staff

HENDRIE GARTSHORE, M.D.

Asst. Chief of Staff

P. P. POLIAK, M.D.

Asst. Chief of Staff

ROSS HENDRICKS, M.D.

Staff Physician

GEORGE KOWALSKI, M.D.

Staff Physician

ALLAN LEVY, M.D.

Staff Physician



"THANK YOU DOCTOR FOR PRESCRIBING PRO-ACET ...

I have never experienced
such a profound sense
of cleanliness."*

*Actual statement
of patient

PRO-ACET, the original liquid douche concentrate with:

DETERGENT ACTION (Sodium Lauryl Sulfate, U.S.P.)

BUFFERED PRECISE ACIDITY (Organic acids)

PATIENT PLEASING RESULTS AND REASONABLE COST (3 cents a quart)

CARBOHYDRATE RESIDUUM FOR DOEDERLEIN ENHANCEMENT

PRO-ACET cleanses the vaginal vault by dispersing mucus and cellular debris with superior wetting action for penetration. Clinically Tested Acid Detergent Douching.¹ Detergents have been shown to have a "toxic action upon the bacterial protoplasm after it has penetrated" the cell.²

Available in 6 and 12 oz. bottles.

Write for information about application of Pro-Acet in your examining room.

Samples Upon Request

Pro-Acet, Inc.

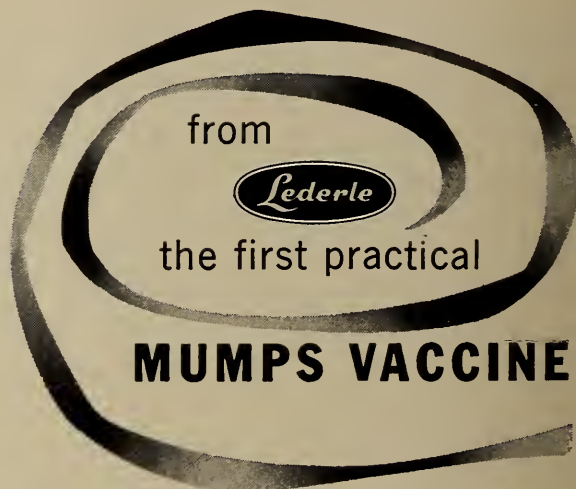
2830 Seminary Ave.,
Oakland 5, Calif.

1. Devroe, R. W., & Footer, W., California Medicine, 80:300 (1954).
2. Gershenfeld, Louis, and Milanick, Vera E., "Bactericidal and Bacteriostatic Properties of Surface Tension Depressants," Am. J. Pharm., 113:306.



DIRECTIONS: To prepare vaginal douche, add one teaspoonful of PRO-ACET Concentrate to each quart of warm water and MIX WELL.

Formula for Pro-Acet Concentrate: Citric Acid, 2.5%; Acetic Acid 4.0%; Lactic Acid 2.0%; Sodium Lauryl Sulfate 3.0%; Dextrose 5.0%; Lactose (beta) 2.5%; Sodium Acetate 2.5%; Methyl Parabon 0.2%; all chemicals U.S.P. in a solution of Distilled Water.



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Packages: 2 cc. vial (1 immunization)
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ELIXIR GALEN "B"® FORTIFIED—each fluid ounce contains not less than: Thiamine 10.0 mg.; Riboflavin 5.0 mg.; Niacin and niacinamide 60.0 mg.; Pyridoxine 4.5 mg.; Pantothenic acid 12.0 mg.; Inositol 112.0 mg.; Choline 150.0 mg.; Biotin 0.015 mg.; Iron (as iron and ammonium citrate) 32.0 mg.; Manganese (as manganese citrate) 16.0 mg., plus all other factors of the B complex group natural to rice bran.

GALEN® MULTIVITAMIN TABLETS—two tablets contain: Vitamin A 5000 U.S.P. units; Vitamin D 800 U.S.P. units; Ascorbic acid 100 mg.; Thiamine 5 mg.; Riboflavin 4 mg.; Niacinamide 30 mg.; Pyridoxine 1 mg.; Calcium pantothenate 5 mg.; Vitamin E 2 mg.; Iron 15 mg.; Manganese 6 mg.; Iodine 0.1 mg.; Copper 1 mg.; Calcium 200 mg.; Phosphorus 150 mg.

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minimize
adrenal
suppression
and
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BY THE REGULAR PERIODIC USE OF

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Stress of surgery, accidents or infections is magnified in patients treated with cortisone, hydrocortisone, prednisone or prednisolone. Adrenal steroids, even in small doses, jeopardize the defense mechanism against stress by causing adrenal cortical atrophy. Concomitant use of HP*ACTHAR Gel counteracts adrenal atrophy by its stimulant action on the adrenal cortex.

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- c. 100 U. of HP*ACTHAR Gel for every 400 mg. of cortisone.
- 2 Discontinue use of steroid on the day of injection.

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**THE ARMOUR
LABORATORIES**

A DIVISION OF ARMOUR AND COMPANY • KANKAKEE, ILLINOIS

Federal Medical Spending for Fiscal Year 1956

(Continued from Page 88)

time served notice that after calendar year 1958, the U. S. share cannot exceed one-third of the total assessments of active member countries. Currently U. S. is assessed one-third of all member nations, including nine Iron Curtain countries which make no contributions. WHO's membership now totals 85 countries, and last year the agency was sponsoring 329 health projects in 76 countries and territories. About 72 per cent of the WHO budget is for operating programs, 10 per cent for administration and salaries and the remainder for such items as expenses for holding meetings and to compensate for nonpayment by inactive countries.

Pan American Sanitary Bureau \$1,320,000
Last Year: \$1,320,000

The Pan American Sanitary Bureau is the regional operating agency for WHO and currently is sponsoring health programs in 21 Latin American countries and the United States. The U. S. share is two-thirds of the Bureau's \$2,100,000 budget.

DEPARTMENT OF LABOR

(This Year: \$7,336,000—Last Year: \$7,171,856)

Bureau of Employees'

Compensation \$6,800,000
Last Year: \$6,720,151

Under the Federal Employees' Compensation Act, approximately 2,300,000 federal workers are eligible for payments for medical and hospital care, rehabilitation services, disability and death, and funeral and burial expenses. The Department has set aside \$4,100,000 for treatment of employees by private physicians and hospitalization in private facilities, and another \$2,700,000 for services in federal hospitals and clinics.

Bureau of Labor Standards \$536,000
Last Year: \$451,706

The Bureau expects to spend about \$400,000 for promotion of industrial safety, and \$136,000 for reemployment programs of the physically handicapped. The Bureau develops standards for hazardous occupation, assists the states in accident prevention programs, and trains personnel for administration of such programs.

PANAMA CANAL ZONE

(This Year: \$5,702,900—Last Year: \$5,800,503)

For hospitalization and medical treatment of Panama Canal Zone Government workers, their families and other residents of the Zone, a total of \$5,185,300 is scheduled for spending this year. Another \$517,600 is earmarked for public health activities, including sanitation and the health director's office. The zone maintains 4 hospitals with a bed capacity of 1,287, as well as two district clinics and 7 first aid stations.

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**a preparation of choice
in the treatment of
HYPERTENSION**

- Rauwiloid represents the balanced, mutually potentiated actions¹ of several Rauwolfia alkaloids, of which reserpine and the equally antihypertensive rescinnamine have been isolated.
- Hence, reserpine is not the total active antihypertensive principle of the rauwolfia plant.
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The dose-response curve of Rauwiloid is flat, and its dosage is uncomplicated and easy to prescribe...merely two 2mg. tablets at bedtime.

1. Cronheim, G., and Toekes, I.M.: Comparison of Sedative Properties of Single Alkaloids of Rauwolfia and Their Mixtures, Meeting of the American Society for Pharmacology and Experimental Therapeutics, Iowa City, Iowa, Sept. 5, 1955.

2. Moyer, J.H.; Dennis, E., and Ford, R.: Drug Therapy (Rauwolfia) of Hypertension. II. A Comparative Study of Different Extracts of Rauwolfia When Each Is Used Alone (Orally) for Therapy of Ambulatory Patients with Hypertension, A.M.A. Arch. Int. Med. 96:530 (Oct.) 1955.

Riker

Rauwiloid is the original alseroxylon fraction of India-grown Rauwolfia serpentina, Benth., a Riker research development.

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*assures
full potency*

Separate packaging of dry vitamins and diluent (mixed immediately before injection) assures the patient a more effective dose. May also be added to standard IV solutions.

Dosage: 2 cc. daily.

Each 2 cc. dose contains:

Thiamine HCl (B ₁)	10 mg.
Riboflavin (B ₂)	10 mg.
Niacinamide	50 mg.
Pyridoxine HCl (B ₆)	5 mg.
Sodium Pantothenate	10 mg.
Ascorbic Acid (C)	300 mg.
Vitamin B ₁₂	15 mcgm.
Folic Acid	3 mg.



LEDERLE LABORATORIES DIVISION

AMERICAN *Cyanamid* COMPANY

PEARL RIVER, NEW YORK

*REG. U.S. PAT. OFF.

Skin Planing for Acne Scars Has Limitations

While skin planing is the best treatment yet devised to improve acne scars, it cannot produce "miraculous new skin," according to a report in a recent issue of the *Journal of the American Medical Association*.

The report, prepared by two dermatologists, Drs. Herbert Rattner, Chicago, and Charles R. Rein, New York, was written at the request of the American Medical Association's Committee on Cosmetics.

An accompanying Journal editorial said, "Enthusiasm for this method should not be discouraged, but its limitations must be clearly understood by the physician and the patient. Dermabrasion can improve skin appearance in many patients; it cannot help others."

The operation, first introduced in 1952, is new in technique, though not in principle. The skin is "frozen" and then abraded with a motor-driven wire brush, which is manipulated in short strokes. The procedure is repeated, progressing from area to area, until all the scars have been planed away. More than one treatment is often necessary.

The tremendous interest in the technique shown by both physicians and patients reveals the "amazing importance and often-exaggerated importance of a scarred skin to a person's emotional well-being," the report said.

Both the report and the editorial warned that patients must understand that the results may fall somewhat short of their expectations.

The editorial said, "Often those who need it most obtain the least relief . . . Those who suffer from severe acne scarring and obtain the least skin improvement are often more enthusiastic about results than the less disfigured patient who experiences marked improvement by the physician's standards."

"Complete dissatisfaction can be expected in those persons who regard their scarred skin as solely responsible for their failures and discontentment in life. An improved skin will not have the magical effect of bringing them the social and economic success that they expect. On the contrary, it removes the excuse the patient has used for his failure."

"There is a real possibility in such patients that harm will be done by converting a minor psychological disturbance into a severe one."

However, the report pointed out that most patients are satisfied with the results. In the beginning practically all patients who sought treatment were treated. Now two or three of every five seeking treatment are rejected either because of unsound emotional attitudes or physical reasons.

The results depend a great deal upon the skill of the operator and the depth and shape of the scars,

(Continued on Page 12)



THORAZINE^{*} *can allay the suffering caused by the pain of **SEVERE BURSITIS***

The ataractic, tranquilizing action of 'Thorazine' can reduce the anguish and suffering associated with bursitis. 'Thorazine' acts not by eliminating the pain, but by altering the patient's reaction—enabling her to view her pain with a "serene detachment" . . . Howell and his associates¹ reported: "Several of [our patients] expressed the feeling that ['Thorazine'] put a curtain between them and their pain, so that whilst they were aware that the pain existed, they were not upset by it."

Before prescribing 'Thorazine', it is important that the physician be fully conversant with our literature, particularly those parts of it dealing with administration, dosage, concomitant actions, side effects, cautions and contraindications.

Smith, Kline & French Laboratories, Philadelphia

1. Howell, T.H.; Harth, J.A.P., and Dietrich, M.: *Practitioner* 173:172 (Aug.) 1954.

*T.M. Reg. U.S. Pat. Off. for chlorpromazine, S.K.F.

'Thorazine' Hydrochloride available in 10 mg., 25 mg., 50 mg. and 100 mg. tablets; 200 mg. tablets for use in mental hospitals; 25 mg. (1 cc.) and 50 mg. (2 cc.) ampuls; and syrup (10 mg./5 cc.).

Skin Planing for Acne Scars Has Limitations

(Continued from Page 10)

the report said. Flat superficial scars respond better than do deep-pitted "ice-pick" types. Results are more satisfactory on the face than on the chest, shoulders, back, or neck.

Scars of recent origin apparently respond better than do old scars, the report said. Youngsters whose acne is still in the active stage usually are not treated, although a few lesions do not interfere with the operation.

The patients usually look their best about six months after the operation. The treatment may be

repeated several times at intervals of four to six months, if necessary, the report said. The age of the patient is not important, although results seem to be better in young persons.

The procedure may be used for scars from herpes zoster, chickenpox, and smallpox.

Dr. Rattner is professor and chairman of the department of dermatology of Northwestern University Medical School and editor of the American Medical Association *Archives of Dermatology*. Dr. Rein is associate professor of clinical dermatology and syphilology at New York University Post-Graduate Medical School.

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Carlson¹ relates the aging process to progressively impaired neuromuscular function; Dixon² links muscular decline with chronic tension and fatigue brought about by depleted values of phosphocreatine. Betasyamine is not a sedative, not a stimulant drug. It is true replacement therapy. Betasyamine contains betaine and glycocyamine, precursors of phosphocreatine. In this manner, it is believed that Betasyamine re-energizes the tense, exhausted patient. By its purely physiologic action, Betasyamine offers a new-found means to meet the problem of autumnal years, whether they be environmental, physical, emotional.

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Supplied: Effervescent Packets (New) — 24's; Emulsion — 16 fl. oz.; Tablets — 200's.

References: 1. Carlson, A. J., in Stieglitz, E. J.: Geriatric Medicine, ed. 3, Philadelphia, J. B. Lippincott Company, 1954, p. 71. • 2. Dixon, H. H.; Peterson, R. D.; Dickel, H. A.; Jones, C. H., and West, E. S.: West J. Surg. 60:327 (July) 1952.

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Thousands Cheated Annually By "Bootleg Dentistry"

No one knows how many thousands of persons annually are cheated of both money and health by the lure of "bargain dentures" and cut-rate dentistry.

An article in a recent issue of *Today's Health*, published by the American Medical Association, warned against "bootleg dentistry" as practiced by technicians in some dental laboratories.

These technicians are not qualified to extract teeth and fit dentures, but are only qualified to work on mechanical appliances under the direction of a dentist, the article said.

Chicago has 137 known laboratories operating in violation of state laws, according to the Chicago Dental Society. This is probably typical of the situation in almost all major cities in the country, it said. These dental laboratories illegally practice dentistry and advertise that they can perform dental operations—usually at what appears to be a bargain rate. However, the work is rarely a bargain, the article said. The actual costs are almost as high as those of some qualified dentists, and are frequently much higher than those of dental school clinics.

The technician is not adequately trained. He "most likely has two or three years of high school" and probably "learned the trade" from some other technician, the article said. Many received their training in schools that operated at top speed for a short time immediately after the war, and were granted "master certificates" for a course of six months or less. "In contrast, the dentist has behind him two to four years of predental study in college, and four years of exacting work in one of the 43 United States dental schools—the best in the world," the article said.

"The denture isn't a product like a table or a set of dishes. The denture itself actually is only a small segment of a delicate and involved operation. Ninety per cent of the process is medical rather than mechanical," it said.

Furthermore, the dentist with his medical training is able to interpret warning signals of diseases elsewhere in the body as they are "flushed" by the condition of the mouth tissues.

Chicago has the "unhealthy distinction" of being the world's center for the mail order denture business, the article said. While there is a federal law prohibiting the mailing of dentures made from impressions taken by someone who is not a dentist, the mail order firms tell their customers to mail in the old denture or an impression from the old denture. "The doubtful logic of this reasoning will apparently have to be pointed out in the courts," the article said.

Another method is that of sending a technician to the home to take an impression. He then returns to the laboratory, makes the denture, and delivers it directly to the home.

(Continued on Page 22)

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coccic infections*

Now, you can prescribe an antibiotic (*Filmtab* ERYTHROCIN) that provides *specific therapy* against staph-, strep- or pneumococci. Since these organisms cause most bacterial respiratory infections (and since they are the very organisms most sensitive to ERYTHROCIN) doesn't it make good sense to prescribe ERYTHROCIN when the infection is coccic?



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©Filmtab—Film sealed tablets; patent applied for.

Thousands Cheated Annually By "Bootleg Dentistry"

(Continued from Page 18)

The Chicago Dental Society has succeeded in closing some of the illegal laboratories through civil suits asking for injunctions.

Earlier attempts at criminal prosecutions failed for several reasons: Customers acting as witnesses were sometimes intimidated; private investigators acting as witnesses were attacked for "trapping" the technicians into operating illegally; juries failed to appreciate the health problem involved, and even when convictions were obtained the court usually would impose only a minimum fine.

While Chicago has had some success in closing illegal laboratories, most cities have had even less. One long step in the right direction recently was made by a circuit judge in Rhode Island who ruled that laboratories could neither practice dentistry nor advertise that they could perform dental operations, the article said.

But it still appears that most laboratory operators will have to be hauled into court and prosecuted individually. And even more than that, the "only real and final solution" to the problem is the education of the public, the article concluded.

Author of the article is Peter C. Goulding of the Public Information Bureau of the American Dental Association, Chicago.



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1. Devore, R. W., & Footer, W., California Medicine, 80:300 (1954).
2. Gershenfeld, Louis, and Milanick, Vera E., "Bactericidal and Bacteriostatic Properties of Surface Tension Depressants," Am. J. Pharm., 113:306.

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Surgery of Colon & Rectum, One Week, April 9, May 7.
General Surgery, Two Weeks, April 23.
Basic Principles in General Surgery, Two Weeks, April 9.
Gallbladder Surgery, Ten Hours, April 9.
Fractures & Traumatic Surgery, Two Weeks, March 12.
Varicose Veins, Ten Hours, March 19, April 30.

GYNECOLOGY—Office & Operative Gynecology, Two Weeks, March 12, April 16.
Vaginal Approach to Pelvic Surgery, One Week, March 5, April 30.

OBSTETRICS—General and Surgical Obstetrics, Two Weeks, March 26, May 7.

MEDICINE—Internal Medicine, Two Weeks, May 7.
Electrocardiography & Heart Disease, Two-Week Basic Course, March 12.
Gastroscopy, Forty-hour Course, March 19.
Dermatology, Two Weeks, May 7.

RADIOLOGY—Diagnostic X-Ray, Two Weeks, April 30.
Clinical Use of Radioactive Iodine, One Week, April 2.
Clinical Uses of Radioisotopes, Two Weeks, May 7.

PEDIATRICS—Intensive Review Course, Two Weeks, May 14.
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- no cases of monilial superinfection ever reported

SUPPLIED: Tablets, 50 and 100 mg. in bottles of 25 and 100.
Oral Suspension, 5 mg. per cc. bottle of 118 cc.

*Breakey, R. S.; Holt, S. H., and Siegel, D.:
J. Michigan M. Soc. 54:805, 1955.

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a new class of antimicrobials
neither antibiotics nor sulfas

American Medical Association Reaffirms Stand for Tax Deferral Equality

In a statement filed with a Joint Economic subcommittee inquiring into income tax policies, the American Medical Association calls anew for tax deferral equality of self-employed and pensionless employed physicians. The association statement notes that self-employed professional people moved nearer to that goal with tentative House Ways and Means Committee approval last session of a revised version of Jenkins-Keogh legislation (H. R. 9 and H. R. 10).

By extending to other groups tax deferral privileges now enjoyed by millions employed by corporations, Congress will be providing an increased incentive to save for old age during a person's best earning years. And, adds the A.M.A. statement, in the case of a physician "who must of necessity go through a long and costly period of training, his maximum earnings occur during a relatively brief period of years when naturally they are subject to high income taxes."

—A.M.A. Washington Letter

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Thiamine Mononitrate (B ₁)	2.5 mg.	Calcium Pantothenate	5 mg.
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Niacinamide	25 mg.	Vitamin B ₁₂	1 mcgm.

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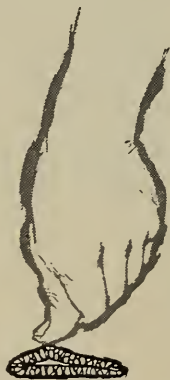
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1. Wolfson, W. Q.: Mississippi Valley M. J. 77: 66, 1955.



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He Practices What He Preaches

American Medical Association President-Elect Dwight H. Murray spoke before the Eighth National Medical Public Relations Conference just preceding the opening of the American Medical Association clinical session in Boston.

In this speech he said that "we should work even harder than before to further improve our relationship with the press," and then added: "We should learn to tell our story in such a way that it is always newsworthy."

It so happened that Dr. Murray's speech was newsworthy, and it was given considerable space by newspapers throughout the country. The Associated Press carried a lengthy abstract of it coast-to-coast and it was the AP story which hit the front page of the Chicago *Tribune* on November 29.

Dr. Murray's talk was tailor-made for newspapers because it discussed primarily the present-day relationship between physicians and the public.

"I think," he said, "that the key to the way people outside the medical profession regard us is the manner in which we regard them . . . No one is going to give one hoot about the problems of the medical profession if we sit on our pedestals waiting for others to come to us.

"Our training may have bred in us the habit of individual responsibility, but we are not the only persons with such training. There are millions of other individuals in this country who are just as interested in the promulgation of our free enterprise system as we are. Many of them feel even more strongly about the threat of socialism than we do. Whatever political battles the medical profession may have won in the past were not won by the physicians alone. Victory was achieved only through the support of millions of other voters.

"We talk much about how good medical public relations begins in each doctor's office. Unfortunately, that's where most of it also ends. Outside of his office, many a doctor shields himself from contact with other citizens like a cloistered nun. He uses his wife and children as a buffer between himself and his neighbors . . .

"Is it any wonder, then, that we get the feeling so often that nobody understands us and our problems? How can they? We never give other people a chance to know us. Do we understand our neighbors and the rest of the citizens of our respective communities? Hardly. We know their appendices and their kidneys and their livers and their tonsils, but we don't know what makes them tick, as fellow human beings who live and eat and work and play just as we do. If we would but stop and look around we would learn that we have many things in common with our neighbors, and they would be very willing to help us with our problems if we would help them with theirs.

—A.M.A. Secretary's Letter

APPLICATION FOR HOUSING ACCOMMODATIONS

FOR YOUR CONVENIENCE in making hotel reservations for the coming meeting of the **California Medical Association**, April 29-May 2, 1956, Los Angeles, hotels and their rates are at the right. Use the form at the bottom of this page, indicating your first and second choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. **All requests for reservations must give definite date and hour of arrival as well as definite date and approximate hour of departure; also names and addresses of all occupants of hotel rooms must be included.**

**ALL RESERVATIONS MUST BE
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3355 Wilshire Boulevard	7.00-9.00	9.50-11.50	9.50-11.00	22.00-27.00
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3191 West Seventh Street	6.00-8.00	9.00-10.00	10.00-12.00	17.00-22.00
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3049 West Eighth Street	4.50-6.00	5.00-7.00	7.50-10.00

*The above quoted rates are existing rates but are subject to any change which may be made in the future.

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THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names of both persons for each double room or twin bedded room requested. Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

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Defense Department Orders Joint Usage of Hospitals

Under a new Department of Defense directive, Army, Navy and Air Force will be required to make joint usage of all U. S. military medical facilities where such procedure is "economical and efficient." The order makes the three secretaries responsible for carrying out its provisions. The services also are called upon to coordinate building and expansion plans with the joint usage policy in mind. Also, the military medical departments are directed to work toward greater standardization in (a) medical education and training, (b) preventive medicine, and (c) laboratory services.

The directive makes plain that joint staffing of facilities is not sought, declaring: "Joint utilization as used herein is not to be construed as joint staffing." Specially trained personnel may be used by all services in "specific instances," however, and teams conducting medical examinations of reserves may be made up of physicians from all the services, if the particular department concerned cannot staff the team.

Key wording of the directive on joint usage of hospitals and clinics reads as follows: "Every effort will be made to reduce, consolidate, or eliminate facilities in specific areas where another facility is available and can economically and efficiently provide the necessary support. Established military medical facilities will be made available to medical components of reserve units in connection with training programs." Other provisions:

Planning of new construction and major alterations—Consideration will be given to "total workload to be performed . . . to provide support for all armed forces personnel, their dependents, and other authorized personnel in the area to be served by the facility."

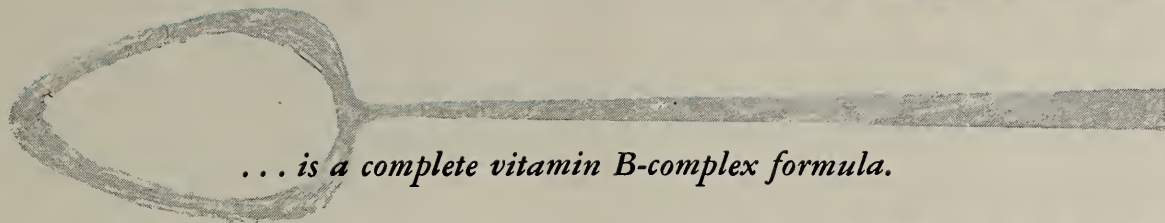
Transfer of personnel now hospitalized—Patients expected to return to duty will be transferred "if transfer is necessary" to the Armed Services medical facility nearest their duty station capable of providing the required care. If they are not expected to return to duty, they will be transferred to the facility nearest their homes.

Health and medical education and training—"Information regarding organized training programs, including symposia and formal postgraduate courses, will be freely exchanged and disseminated among departments. Continuing study will be made of departmental health and medical training methods and programs with the view to standardization of courses and their further joint utilization."

Preventive medicine—"Continuing studies will be conducted of departmental preventive health and medicine policies, organizations, procedures, and

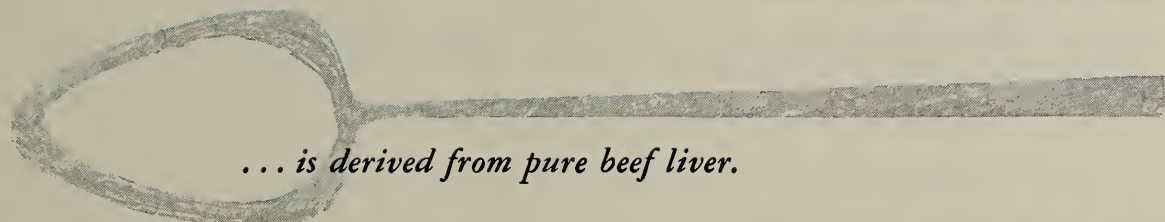
(Continued on Page 38)

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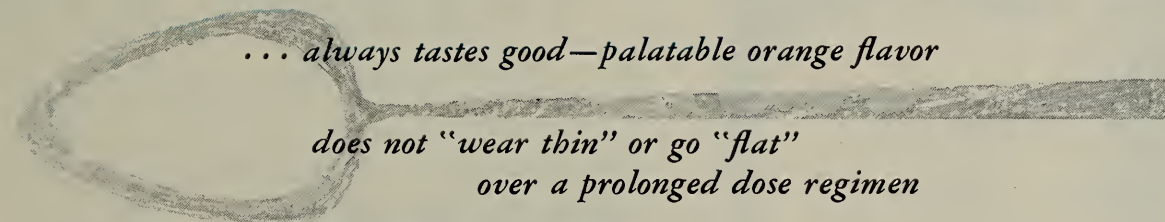
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Each teaspoonful (4 cc.) contains:

Thiamine HCl (B ₁).....	2 mg.	Pantothenic Acid.....	2 mg.
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Pyridoxine HCl (B ₆).....	0.2 mg.	Vitamin B ₁₂	5 mcgm.

Also offered in Tablet, Capsule and Parenteral forms.

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*REG. U.S. PAT. OFF.



Defense Department Orders Joint Usage of Hospitals

(Continued from Page 34)

publications with the view to further standardization and joint use . . ."

Laboratory service—"Optimum joint utilization will be made of military hospital and other medical laboratories for the performance of clinical laboratory procedures . . . and of epidemiological investigations. Continuing studies will be conducted of departmental medical laboratory facilities organizations, procedures and functions with the view to further standardization and joint utilization."

The Defense Department directive moves in the direction of one of the Hoover Commission's medical recommendations. The Commission, in a report to Congress early this year, proposed that all military medical services in this country be regionalized, with the service carrying the dominant responsibilities in charge of each region.

—A.M.A. Washington Letter

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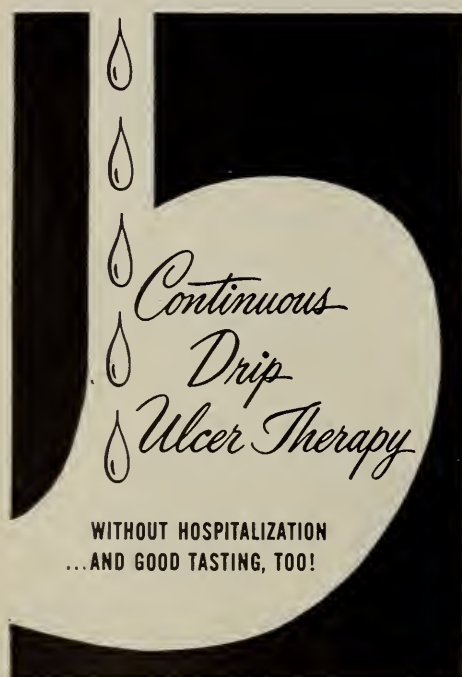
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A recent clinical study* of 46 ambulatory nonhospital patients treated with Nulacin† and followed up to 15 months describes the value of ambulatory continuous drip therapy by this method. Total relief of symptoms was afforded to 44 of 46 patients with duodenal ulcer, gastric ulcer and hypertrophic gastritis.

The delicately flavored tablets dissolve slowly in the mouth (not to be chewed or swallowed). They are not noticeable and do not interfere with speech.

Nulacin tablets are supplied in tubes of 25 at all pharmacies. Physicians are invited to send for reprints and clinical sample.

*Steigmann, F., and Goldberg, E.: Ambulatory Continuous Drip Method in the Treatment of Peptic Ulcer, *Am. J. Digest. Dis.* 22:67 (Mar.) 1955.

†Mg trisilicate 3.5 gr.; Ca carbonate 2.0 gr.; Mg oxide 2.0 gr.; Mg carbonate 0.5 gr.

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The Upjohn Company, Kalamazoo, Michigan



Spleen Removed to Save Inflamed Eye

Three Brooklyn, New York, physicians reported the removal of a patient's spleen in the hope of saving an eye.

They said in a recent issue of *Archives of Ophthalmology*, published by the American Medical Association, that they believe their case is unique.

A 58-year-old white woman had chronic rheumatoid arthritis, enlargement of the spleen, and leukopenia. This combination is known as Felty's syndrome.

In addition to these symptoms, the woman developed an inflammation of the left eye. The

authors said they knew of only one other case in which eye difficulties were associated with Felty's syndrome.

The woman's eye was treated with antibiotics, but eventually it had to be removed. Two weeks after she was discharged from the hospital, the right eye became inflamed.

Because of her low white blood cell count, her resistance to infection was lowered. The physicians decided to remove the enlarged spleen, which apparently plays a part in producing leukopenia. They hoped this would improve her general physi-

(Continued on Page 46)



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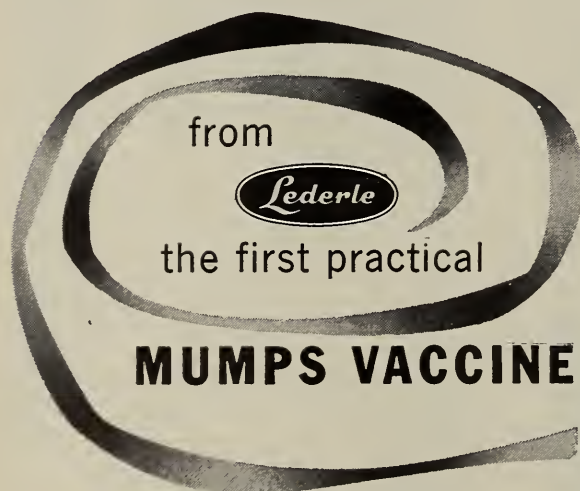
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Packages: 2 cc. vial (1 immunization)
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- Insole extension and wedge at inner corner of heel where support is most needed.
- Special Supreme rubber heels are longer than most anatomic heels and maintain the appearance of normal shoes.
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- By a special process, using plastic positive casts of feet, we make more custom shoes for polio, club feet and all types of abnormal feet than any other manufacturer.

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Here is where you have to clamp on a control.

One can paper the dining room wall with diet lists—but that will not help the patient understand the serious end-results of over-eating.

Where a chemical control is needed to offset the food craving which contributes to his obesity

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—gives you that control—it depresses the appetite—gives the patient a feeling of well-being and energy which encourages activity and lessens dependence upon heavy food consumption.

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Supplied: 5 mg. tablets, scored, green; imprinted 'McNeil'—bottles of 100 and 1,000. Samples on request. Also available in a pleasant-tasting elixir (colored amber); each 5 cc. (one teaspoonful) containing 5 mg.—pints and gallons.

McNEIL LABORATORIES, INC. • PHILADELPHIA 32, PA.

Spleen Removed to Save Inflamed Eye

(Continued from Page 42)

cal condition, which in turn would protect the eye from further infection.

Following the operation, the white cell count rose to above normal and the condition of the eye improved. Fifteen months later the vision had improved to 20/50, compared to 20/200 before surgery.

The report was made by Drs. Paul J. and Marilyn Ostriker and Mortimer A. Lasky from the ophthalmological service of Jewish Hospital, Brooklyn.

Blood Test Used to Diagnose Myocardial Infarction

A blood test which measures the amount of an enzyme normally abundant in the heart muscle may be used to diagnose one type of heart failure, five Los Angeles researchers said recently.

The heart condition is acute myocardial infarction, in which heart muscle cells die when a blood clot shuts off their blood supply.

The Los Angeles scientists found that the blood level of aminopherase, also known as transaminase, increases when an infarction occurs. Aminopherase is one of the enzymes or body catalysts. It

(Continued on Page 50)

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100 GRAM PORTION CALORIE VALUE

Protein	24.00 calories
Butterfat	90.00 calories
Stabilizer (pure)	1.60 calories
Carbohydrate	
Milk Sugar	19.00 calories
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SILICARE, (a combination of silicone and hexachlorophene, in a specially prepared base) was found very effective in the treatment of subacute and chronic housewives' eczema, contact dermatitis of the hands, uncomplicated "diaper rash", perioral dermatitis due to excessive moisture, angular stomatitis and cheilitis.

CAREFULLY CONDUCTED CLINICAL TESTS SUBSTANTIATE SILICARE'S THERAPEUTIC CLAIMS.

The results of these tests were reported in an article which first appeared in California Medicine.* As SILICARE is now being nationally advertised and distributed we thought that both a reprint of this article and a professional package of SILICARE might be of interest to you.

If you will fill in the coupon below, we shall forward these to you. Above all, we most certainly would value any comments you might have respecting SILICARE.

Sincerely yours,

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Gentlemen:

- ☐ Please send me the reprint of the article
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*Le Van, P., Sternberg, T. H., and Newcomer, V. D., Cal. Med., 81: 210-213, Sept. 1954.

Silicones 1.5 per cent; glyoxyli diureide. 0.2 per cent; camphor. 0.1 per cent; menthol. 0.1 per cent; hexachlorophene, 0.25 per cent; in an ethanolamine stearate lotion.

Blood Test Used to Diagnose Myocardial Infarction

(Continued from Page 46)

makes changes in the amino acids. The breaking down of the heart muscle cells apparently releases the enzyme into the blood.

A rise in the blood level of aminopherase occurred in 13 of 14 patients with proved cases of myocardial infarction, they said in a recent issue of the *Journal of the American Medical Association*.

Because the peak amount of the enzyme is reached about two days before the peaks of other conditions generally studied for diagnosing an infarction, the aminopherase method may be valuable in speeding diagnosis, they said. The test also may be used in cases in which the electrocardiogram fails to show heart damage.

The level of aminopherase in the blood usually begins to rise from six to 12 hours after the infarction occurs and the peak is reached in 24 to 36 hours, followed by a decline to normal by the fifth or sixth day.

Other heart disorders apparently do not produce any changes in the amount of the enzyme in the blood, they said. However, liver disease produces a rise in the enzyme level, but the peak is delayed for 13 to 18 days.

Other researchers have noted a quantitative relationship between the aminopherase level and the

extent of the damage to the heart in dogs. Whether this is true of humans has yet to be proved, the authors said.

The report was made by Albert A. Kattus, Jr., M.D., Robert Watanabe, A.B., Charles Semenson, A.B., William Drell, Ph.D., and Clarence Agress, M.D., from the Veterans Administration Center and the departments of medicine and physiological chemistry, University of California Medical Center, Los Angeles.

Chemical Poisoning Treatment Outlined

Physicians recently were advised on methods of treating organic phosphate poisoning, which has become increasingly prevalent in recent years through the misuse of some insecticides.

The potential use of these same phosphate compounds as chemical warfare agents also makes it important that physicians become better acquainted with ways of diagnosing and treating such poisoning, two University of Illinois scientists said in a recent issue of the *Journal of the American Medical Association*.

The compounds are among the most powerful insecticides yet developed and extensive agricultural use has resulted in many accidents and deaths, they said.

(Continued in Back Advertising Section, Page 60)

WHILE YOU WERE OUT

Message: Mr. Bracken phoned.
His pruritus ani has recurred & he was
frantic. I recommended Calmitol.
You generally suggest it. Okay? M.S.

TIME: 2:23

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Peggy - Thanks - Calmitol is about
the best all purpose antipruritic
we know, and it should relieve
Mr. Bracken until I can see him.
H. C.

*CALMITOL is the non-sensitizing antipruritic supplied in 1½-oz. tubes and 1-lb. jars by THOS. LEEMING & Co., INC., 155 East 44th St., New York 17, N. Y.

Each ounce contains: Hyoscyamine oleate (equivalent to 0.028 mg. hyoscyamine alkaloid), 0.055 mg.; Alcohol, 1.4 cc.; Camphor, 0.16 gm.; Ether, 0.5 cc.; Chloroform, 0.19 cc.; Chloral hydrate, 0.13 gm.; Menthol, 0.17 gm.; in a suitable ointment base.

California

M E D I C I N E

OFFICIAL JOURNAL OF THE CALIFORNIA MEDICAL ASSOCIATION

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Volume 84

FEBRUARY 1956

Number 2

Clinical Trial of the Penn Test for Cancer

ROBERT A. BLOSSOM, M.D., FREDERICK J. MOORE, M.D., and
EDWARD M. BUTT, M.D., Los Angeles

IT HAS BEEN REPORTED³ that the Penn seroflocculation test for cancer gives positive results in a high percentage of patients with malignant tumors and only rarely gives positive results in patients without disease or pregnancy. An independent trial was carried out to evaluate the clinical usefulness of this test.

Clinical material was obtained from the wards and outpatient clinics of the Los Angeles County General Hospital, including the dermatology and tumor clinics. Supposedly normal sera were obtained from blood bank donors, medical students and hospital employees (25 per cent were over 40 years of age and none were over 55). The same questionnaire as was used by the Penn group was completed on each individual. Among the normal group this questionnaire was filled out by the individual, while among the patients the questionnaire was completed by one of the authors. For purposes of analysis of data the patients were categorized as normal, non-tumor, benign tumor, malignant tumor, and unknown.

A total of 1309 sera were studied, of which 175 were termed "unknown" or "undiagnosed" for lack of adequate information concerning the patient. (Most of these persons were patients who did not return to the clinic, who died without autopsy, or

From the Department of Pathology, Los Angeles County Hospital, Los Angeles 33.

Submitted December 21, 1955.

This study was aided by a grant from special funds of the University of California at Los Angeles.

Dr. Blossom is a trainee of the National Cancer Institute at the Tumor Tissue Registry of the Cancer Commission of the California Medical Association, Los Angeles County General Hospital.

• An independent clinical trial of the Penn seroflocculation test for cancer was carried out in order to learn whether this test might be clinically useful either in differential diagnosis or as a screening test for the detection of cancer. In addition, studies were made of the flocculation titer of sera giving positive Penn tests. Incidental observations were made concerning the reproducibility of the test.

The trial provided no evidence that the test might be useful in cancer detection.

The test should be improved technologically before further clinical evaluations are undertaken.

Further study of the basic mechanisms that bring about the positive Penn reaction appears desirable.

who for any reason were lost to the study before a definite diagnosis could be established.) The remaining 1134 sera were drawn from 1113 persons, the 21 additional sera being drawn from 17 patients as noted in a later part of this report. The diagnosis of malignant disease in 282 patients and of benign tumor in 137 patients was confirmed in each case by histological examination.

All sera were collected and processed according to the procedures specified by Penn and his associates.^{3,5} To assure conformity with their techniques a technician employed by the Los Angeles County Hospital Attending Staff Association spent three weeks at Sawtelle Veterans Hospital familiarizing himself with the methods and mechanics of the test. The "antigen" used was a derivative of choladienic

ester (ethyl choladienate) supplied by Lederle Laboratories.

The Penn test consists of using two tubes containing different amounts of undiluted serum with a fixed amount of "antigen." The test is called positive if either or both of these tubes contains large flocules and a crystal clear solution, and a tube is called negative if there are no particles and the solution is cloudy to hazy. Tubes in which the results were doubtful were consistently recorded in this study as negative.

Most of the sera which gave a positive Penn test were subjected in addition to a determination of titer at the suggestion of Penn and his associates, who had found⁴ that "false" positives in normal sera were usually positive only in a low dilution, while sera from patients with cancer usually had a higher titer. A titer of 1:12 was considered by the Penn group to be definitively positive. Accordingly, in reporting the results in the series, the standard, two-tube Penn test is designated the "presumptive" test. The new and additional titration test was called "definitively positive" in sera showing a titer of 1:12 or more.

RESULTS

Table 1 shows the overall results in the 1134 sera from patients with established diagnosis and in the 175 sera drawn from patients without established diagnosis. The presumptive test (i.e., the conventional Penn test) was positive in 9 per cent and the definitive test (titer 1:12 or higher) was positive in 2 per cent of the supposedly normal persons. Corresponding data on persons with miscellaneous disease conditions were, respectively, 62 and 41 per cent; for pregnant women, 72 and 44 per cent; for persons with benign tumors, 30 and 12 per cent; for dermatologic malignant disease, 48 and 30 per cent; and for malignant tumors of all other organs, 80 and 49 per cent. (While positive reactions in the presence of cancer of the skin were considerably fewer than with malignant disease of other organs, the results among these other categories of malignant growth were essentially homogeneous.) Sera from patients with malignant tumors of any kind gave a presumptive positive result in 75 per cent and a definitive positive result in 46 per cent, while in individuals with neoplasia of any kind the results were, respectively, 61 per cent and 35 per cent.

In the 175 sera drawn from patients on whom information was inadequate for diagnosis, 78 per cent were positive in the presumptive test and 44 per cent were positive in the definitive titration test. In patients with proven malignant disease the positive results were 75 per cent and 46 per cent, while in those with miscellaneous nonneoplastic diseases they were 61 and 47 per cent respectively.

TABLE 1.—Overall results, showing number of sera tested, and the number and percentage positive on conventional Penn test and the number and percentage definitively positive with a titer of 1:12, according to classification of the individual

Classification of Patient	Total No. of Sera	Penn Test Positive		Titration Test Positive 1:12	
		No.	Per Cent	No.	Per Cent
"Normal" persons	560	50	8.9	10	1.8
Benign tumors	139	41	29.5	17	12.2
Malignant tumors	294	221	75.2	136	46.3
Pregnancy	54	39	72.2	22	40.7
Miscellaneous diseases	87	53	60.9	41	47.1
Diagnosis not established	175	137	78.3	77	43.8

TABLE 2.—Reaction to Penn test and to titration in sera of persons with miscellaneous nonneoplastic diseases.

Disease	Total No. of Sera	Penn Test Positive		Titration Test Positive 1:12	
		No.	Per Cent	No.	Per Cent
Diabetes	19	12	63	8	42
Peptic ulcer	10	9	90	7	70
Gallbladder disease	6	5	83	5	83
Pelvic inflammatory disease	5	3	60	3	60
Breast abscess	4	2	50	1	25
Chronic cervicitis	4	2	50	1	25
Acute appendicitis	4	4	100	4	100
Inguinal hernia	3	3	100	2	67
All other conditions*	32	13	41	10	31
Total.....	87	53	61	41	47

*Includes one or two cases each of tuberculosis, rheumatoid arthritis, infectious mononucleosis, gangrene, subacute bacterial endocarditis, tonsillitis, uremia, pyelonephritis, burns, fracture, arteriosclerotic heart disease, varicose veins (one or more positives being found in each of these conditions); myocardial infarction, hypertensive heart disease, bronchiectasis, cystitis, tracheitis, anemia, osteoarthritis, epidermatophytosis, gingivitis, gastroenteritis, and stab wound in the chest.

Data on the 87 sera drawn from patients with miscellaneous non-neoplastic diseases are broken down according to kind of disease in Table 2. The Penn test was positive in a majority of patients who had diabetes, peptic ulcer, gallbladder disease, pelvic inflammatory disease, breast abscess, chronic cervicitis, acute appendicitis, inguinal hernia, tuberculosis, rheumatoid arthritis, infectious mononucleosis, gangrene, subacute bacterial endocarditis, tonsillitis, uremia, pyelonephritis, burns, fractures, arteriosclerotic heart disease, or varicose veins.

Two or more tests were made at various time intervals on 17 of the patients. The results available on these multiple tests of the same person are shown in Table 3. In ten of these persons the results of the tests that were done at different times were not identical. In 16 of these sera the result of the presumptive test was negative and it is unfortunate that the definitive test (serum titration) was done in only four of them. In these four Penn-negative sera, however, the definitive test was positive in two and negative in two. (All four of these patients had malignant tumors).

Since the purpose of this investigation was to make an independent clinical trial of the Penn test, its objectives did not include any direct experimental

TABLE 3.—Results of consecutive tests of the same person in 17 cases.

Diagnosis	Date	Penn Test	Titration Test 1:12 Dilution
Normal	3/16	+	+
	4/7	+	+
Malignant disease	3/16	+	+
	4/26	+	+
Malignant disease	4/12	+	+
	10/20	+	+
Malignant disease	3/9	+	+
	5/17	+	—
Benign tumor	8/18	+	—
	8/30	+	+
Normal	3/17	+	—
	4/5	+	—
Malignant disease	3/9	—	+
	3/17	+	+
	3/22	+	+
Normal	4/15	—	—
	5/29	+	—
	6/8	+	—
	6/15	+	—
	6/23	—	—
Malignant disease	2/23	+	—
	3/9	—	—
Malignant disease	3/15	—	—
	4/12	+	—
Malignant disease	5/3	+	—
	6/14	—	—
Malignant disease	9/20	—	—
	11/17	+	—
Benign tumor	11/1	+	+
	11/17	—	—
Malignant disease	3/24	—	+
	3/30	—	—
Malignant disease	4/12	—	—
	8/30	—	—
Normal	4/15	—	—
	9/7	—	—
Malignant disease	3/24	—	—
	3/30	—	—

effort to measure the technical validity of the test or to attempt to develop any technological improvements. Nonetheless, during the course of the study the authors were asked to test an improved antigen prepared by the Penn group (antigen "3") in parallel with the antigen which had been received from the Lederle Laboratories for this study (antigen "1"). This seemed like a good opportunity to try also a second antigen (antigen "2") obtained from the Lederle Laboratories and presumed to be identical with antigen "1." Sera of 100 patients which had been tested with antigen "1" were subsequently tested with antigens "2" and "3." The time between the test with "1" and the tests with "2" and "3" ranged from one day to 40 days, but there did not appear to be any correlation between this interval and the results. The results obtained with the three antigens in tubes 1 and 2 of the presumptive test are shown in Table 4 with the number of sera exhibiting each kind of result. It is noted from this table that the results were identical with the three antigens in

TABLE 4.—Results of the two-tube conventional Penn test on 100 sera using three antigens.

Antigen "1" Tube		Antigen "2" Tube		Antigen "3" Tube		Number of Sera
1	2	1	2	1	2	
+	+	+	+	+	+	59
—	—	—	—	—	—	21
—	+	+	+	+	+	5
+	+	+	+	+	—	2
+	—	—	—	—	—	1
—	—	—	—	+	—	1
+	+	—	—	+	+	5
—	—	+	+	+	+	1
+	+	—	—	—	—	1
—	—	—	—	+	+	3
—	—	+	+	+	—	1

30 sera, and almost identical in nine more. In the remaining 11 sera, however, there was pronounced disagreement between antigens and none of the three antigens appeared consistently more or less sensitive than the others.

In 13 of these same sera the test with one or more of the three antigens was made more than once, and in nine of these sera the titration test was also performed with antigen "1." The results are shown in Table 5. In the case of these 13 sera the presumptive test with antigen "1" was repeated at the time antigens "2" and "3" were used. There was no instance among the 13 in which the results with the three antigens were perfectly consistent. It is notable that presumptive tests with antigens "2" and "3" gave doubtful or negative results in the two sera which were definitively positive in a dilution of 1:12 when tested against antigen "1." On the other hand, both antigens "2" and "3" gave consistently positive results with one serum (No. 1189) that was only questionably positive in the presumptive test with antigen "1" and definitely negative in the titration test with antigen "1."

While it had been hoped that these tests could be run without laboratory knowledge of the diagnosis of the patient, it became a practical necessity for the technician doing the tests to draw the majority of the blood specimens from patients on the wards or in the clinics. The majority of sera from normal persons were also readily identified by the fact that they were sent to the laboratory in racks from the blood bank. In view of the technological discrepancies noted in the foregoing data, the authors examined the results with sera from normal patients according to whether these sera were the only ones tested that day in this clinical series, or whether they were tested along with other categories of sera. A similar study was made of sera from patients with malignant tumors. The findings are shown in Table 6. It was noted that "false positives" in normal sera were obtained only half as often when these sera were run alone, and that "false negatives" with

malignant sera were also obtained half as often when these were run alone. The reductions in incidence of positive presumptive tests in normal sera and of negative definitive tests in malignant sera when these were run alone are statistically significant: ($p=.02$ and $p=\text{less than } .01$, respectively).

As has already been noted, in the conventional

Penn test two tubes in which antigen is combined with serum are used and the result is called positive if the reaction in either or both of these tubes is positive. The determination of titer constituted information over and above that provided by the conventional test as reported in the literature, and the data of the present study have therefore been subjected to additional study as to the results of titration and the agreement between titration and the two tubes of the conventional test.

With respect to consistency of the titration of any given serum, it was noted that 82 of the titrated sera were positive at 1:30. Eleven of these (or 13 per cent) were negative at 1:20 and five of the 11 were also negative at 1:16. Of the 11 sera which were negative at 1:20 and positive at 1:30, six were also positive at 1:40 and one of them was positive also at 1:60 and 1:80. These were the only discrepancies noted except for the fact that undiluted serum quite frequently gave a negative result when positive in dilutions of 1:6 or more.

The relationship between disease status and titer in sera which gave a positive Penn test is shown in Table 7. When the Penn test was positive in normal sera it remained positive in more than half of the sera when diluted 1:6, but none of the normal sera gave positive reaction at titers higher than 1:20. About 80 per cent of sera from patients with benign tumors that were Penn-positive remained positive through the dilution 1:8, but none of them were positive in a dilution higher than 1:20. Penn-positive

TABLE 5.—Repeated presumptive tests on the same sera using three antigens.

Serum No.	Antigen "1" Tube		Antigen "2" Tube		Antigen "3" Tube		Serum Titer Against "1"
	1	2	1	2	1	2	
1186	+	—	—	—	—	—	Negative 1:6
	—	—	—	—	—	—	
1189	—	—	—	—	—	—	
	—	+	+	+	+	+	
	—	+	+	+	+	+	
1203	—	—	—	—	+	+	Negative 1:6
	+	—	+	+	+	+	
	+	+	—	—	+	—	
1224	—	—	—	—	+	+	
	+	+	+	+	+	+	
	+	+	—	—	+	+	Positive 1:6
1199	+	+	—	—	—	—	
	+	—	—	—	+	+	
1198	+	+	—	—	—	—	Positive 1:8
	+	+	—	—	—	—	
	+	+	—	—	+	+	
1223	—	—	—	—	—	—	
	+	+	+	+	+	+	
	+	+	—	—	+	+	Positive 1:12
1183	+	+	—	—	—	—	
	+	+	—	—	—	—	
	+	+	—	—	+	+	
1184	+	+	—	—	—	—	
	+	+	—	—	—	—	(Titration not done)
	+	+	—	—	—	—	
1173	—	—	—	—	—	—	
	—	—	—	—	—	—	
	+	+	—	—	—	—	(Titration not done)
1206	—	—	—	—	+	+	
	+	+	—	—	+	+	
	+	+	—	—	+	+	
1220	—	—	+	—	+	—	(Titration not done)
	—	—	—	—	+	—	
	+	+	—	—	+	—	
	+	+	—	—	+	—	
1222	—	—	+	—	+	—	
	—	—	—	—	—	—	(Titration not done)
	+	+	—	—	—	—	

TABLE 6.—Results with "normal" and malignant sera depending upon whether or not the sera were run along with other kinds of sera in this series on the same day.

Sera from Normal Persons		Number of Sera		"False Positive" Test			
				Penn Test		Titer 1:12	
		No.	Per Cent	No.	Per Cent	No.	Per Cent
Run alone	260	15	6	2	1		
Run with other sera....	300	35	12	8	3		

Sera from Persons with Malignant Disease		Number of Sera		"False Negative" Test			
				Penn Test		Titer 1:12	
		No.	Per Cent	No.	Per Cent	No.	Per Cent
Run alone	43	6	14	12	28		
Run with other sera....	251	67	27	146	58		

TABLE 7.—Results of titration of Penn-positive sera.

	Number of Sera	Per Cent of Sera Positive in Dilution of:											
		1:6	1:8	1:12	1:16	1:20	1:30	1:40	1:50	1:60	1:80	1:100	1:120
Normal.....	50	54	34	20	16	4	0	0	0	0	0	0	0
Benign tumor.....	41	80	78	41	2	2	0	0	0	0	0	0	0
Malignant disease.....	214	93	84	63	36	31	18	14	7	4	3	1	1
Dermatologic.....	21	86	76	62	24	24	10	10	5	5	5	0	0
All other.....	193	94	85	63	37	32	19	14	7	4	3	2	2
Miscellaneous.....	92	95	89	68	32	27	21	13	4	2	0	0	0
Not diagnosed.....	134	85	79	57	34	29	14	9	3	3	1	0	0

TABLE 8.—Results in the titration of sera in relation to results in the two tubes of the Penn test. Patients are grouped as "normal," "benign tumor," and "all others" (which includes malignant disease, pregnancy, miscellaneous nonneoplastic diseases, and no diagnosis).

Penn Test Tube		Category	Number of Sera	Per Cent of Sera Positive in Dilution of:											
1	2			1:6	1:8	1:12	1:16	1:20	1:30	1:40	1:50	1:60	1:80	1:100	1:120
+	+	Normal	28	79	54	32	7	0	0	0	0	0	0	0	0
		Benign	38	82	79	39	3	3	0	0	0	0	0	0	0
		Others	413	92	85	63	34	29	17	11	5	3	2	1	1
—	+	Normal	0	—	—	—	—	—	—	—	—	—	—	—	—
		Benign	0	—	—	—	—	—	—	—	—	—	—	—	—
		Others	14	86	86	71	71	71	71	64	7	7	0	0	0
+	—	Normal	22	23	9	5	0	0	0	0	0	0	0	0	0
		Benign	3	67	67	67	0	0	0	0	0	0	0	0	0
		Others	13	46	38	23	0	0	0	0	0	0	0	0	0
—	—	Normal	37	3	3	0	0	0	0	0	0	0	0	0	0
		Benign	17	6	0	0	0	0	0	0	0	0	0	0	0
		Others	33	21	15	6	3	3	3	3	3	3	3	0	0

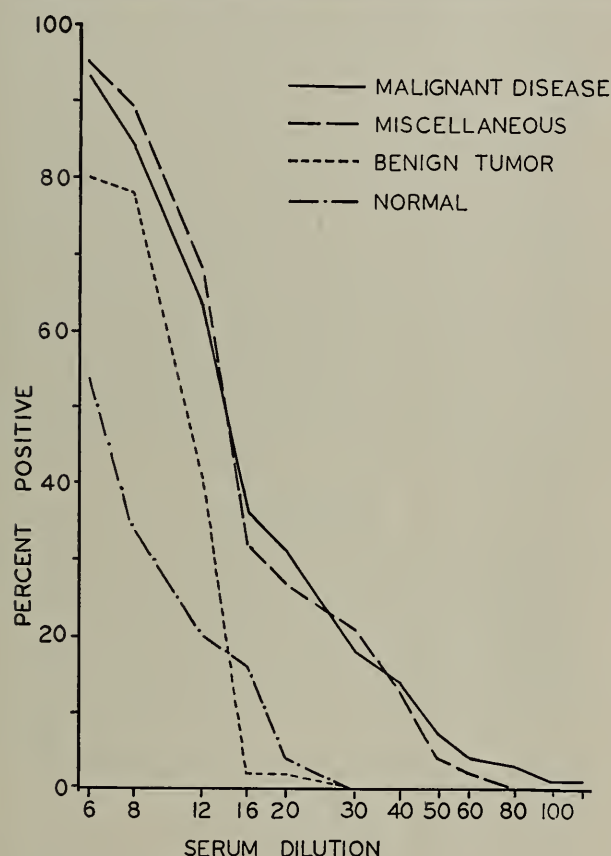


Chart 1.—Titration of sera that gave positive results in the conventional Penn test, shown according to whether the patient had malignant tumor, miscellaneous conditions (pregnancy or any of a large number of nonneoplastic diseases), benign tumor, or no known disease (normal).

sera from patients with malignant tumors, with pregnancy or miscellaneous nontumor diseases, and without established diagnosis all gave essentially similar results by titration test. The titration curves for these various categories of patients are shown in Chart 1.

It appears from Table 7 and Chart 1 that Penn-

positive sera from normal individuals and patients with benign tumors tend to have lower titers than do Penn-positive sera from patients with malignant tumors, pregnancy, and a wide range of nonneoplastic diseases. It is also clear that the titer of the serum has little or no significance in distinguishing normal persons from those with benign tumors, nor in distinguishing malignant disease from a large variety of nonneoplastic conditions.

An analysis has also been made of the results of titration in sera of the different disease categories in relation to the results in tubes 1 and 2 of the Penn test (both positive, the first or the second negative, both negative). From the results previously cited, the sera were grouped in three categories: Normal, benign tumor, and all others (the latter including malignant disease, miscellaneous nonneoplastic diseases, pregnancy, and undiagnosed). The findings are shown in Table 8. Here again the essential similarity in the titration results with normal sera and benign tumor sera is apparent, as is the generally higher titer of patients with a wide variety of other clinical conditions. The two tubes of the Penn test, however, appear to be different in their ability to predict the results of titration, a positive reaction in the second tube being a good deal more reliable in this respect than a positive in the first tube. The relationship between the result in tube 2 (disregarding entirely the result in tube 1) and the results in the titration of sera from normal persons and patients with benign tumors and in patients with all other conditions included in this study, is shown in Table 9.

Finally, attention should be called, in Tables 8 and 9, to the frequency (10 per cent) with which Penn-negative sera were found positive in the titration test. Of all sera examined by titration, 91 per cent were positive in the 1:6 dilution when tubes 1 and 2 of the conventional test were both positive; 86 per cent when tube 1 was negative and tube 2 positive; 34 per cent when tube 1 was positive and

TABLE 9.—Results of titration of sera that showed positive and negative results in the second tube of the Penn test, disregarding results in the first tube.

	Penn Tube No. 2	Number of Sera	Per Cent of Sera Positive in Dilution of:											
			1:6	1:8	1:12	1:16	1:20	1:30	1:40	1:50	1:60	1:80	1:100	1:120
Normal and benign tumor	+	66	80	68	36	5	2	0	0	0	0	0	0	0
	—	79	11	6	4	0	0	0	0	0	0	0	0	0
Malignant disease, pregnancy, miscellaneous, and undiagnosed	+	427	92	88	63	35	30	19	13	5	4	2	1	1
	—	46	28	22	11	2	2	2	2	2	2	2	0	0

tube 2 negative; and 10 per cent when both tubes 1 and 2 were negative. One specimen which gave a negative Penn test result in both tubes was positive through the dilution 1:80 when subjected to titration.

DISCUSSION

With respect to the possible value of the Penn seroflocculation test in the differential diagnosis of overt cancer, the following clinical conditions gave an incidence of positive Penn tests approaching that found in patients with proven malignant disease: Pregnancy, diabetes, peptic ulcer, gallbladder disease, pelvic inflammatory disease, breast abscess, chronic cervicitis, acute appendicitis, inguinal hernia, tuberculosis, rheumatoid arthritis, infectious mononucleosis, gangrene, subacute bacterial endocarditis, tonsillitis, uremia, pyelonephritis, burns, fractures, arteriosclerotic heart disease, and varicose veins. Although this study by no means excludes the possibility that the Penn test may also be positive in numerous other conditions, this list alone is sufficiently heterogeneous to indicate the broad spectrum of conditions that may give a positive reaction. It appears to be a nonspecific⁶ test for illness, but does not distinguish illness from pregnancy.

With respect to its possible use for the discovery of subclinical malignant disease, explicit evidence cannot be set forth on the basis of the present study, since this would require the careful observation of all persons in this study who were not already known to have cancer to see whether cancer developed later in most of those with positive Penn test results, and did not develop later in most of those with negative results. It is not inconceivable that 9 per cent of the "normal" persons in this series actually had unsuspected neoplasms, but this seems improbable since only about 25 per cent of the "normals" were over 40 years of age and none were over 55. It would seem a good deal more likely that the test does in fact give false positive reaction from time to time³ and/or that the "normal" persons with positive reaction had pelvic inflammatory disease or varicose veins or tuberculosis or some other condition of which they were unaware.

Any suggestion that the Penn test might be useful in the detection of early cancer would appear to require an assumption that a test which gives positive reaction in advanced, clinically obvious malig-

nant disease will also be positive when used in the case of a person who has a very early, asymptomatic and hidden cancer. There is no direct experimental evidence at present to justify this assumption and, to the authors at least, it seems a remote hope that a test which is positive in only 80 per cent of cases of readily diagnosable cancer would be positive in any substantial proportion of early and otherwise undetectable cancer. In addition, it must be noted that the lack of specificity of the test would tend to vitiate entirely the conclusion that an apparently normal person with a positive reaction to the test had a hidden cancer: He might as well have any of a very large number of quite unrelated disorders. A positive reaction to the test under these conditions could only be used as an argument to the patient to have a thorough check-up every six months.

With respect to the variability of the test itself, the data presented are incidental to the purpose of this study. It is apparent, however, that the test is difficult to control and that the results are not sufficiently reproducible.

CONCLUSIONS

1. An independent trial of the Penn seroflocculation test for cancer was carried out.
2. This trial provided no evidence that the test might be useful in cancer detection.
3. The technology of the test should be improved before further clinical evaluations are undertaken.
4. Further study of the basic mechanisms responsible for the positive Penn reaction appears desirable.

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REFERENCES

1. Dunn, J. E., Jr., and Greenhouse, S. W.: Cancer Diagnostic Tests. Principles and Criteria for Development and Evaluation, Public Health Service Publication No. 9, Washington, D.C., 1951.
2. Dunn, J. E., Jr., and Greenhouse, S. W.: The development and evaluation of cancer diagnostic tests, Public Health Rpts., 68:880, Sept. 1953.
3. Hall, G. C., Dowdy, A. H., Penn, H. S., and Bellamy, A. W.: Tumor lipoids: Part II. Clinical evaluation of a serologically active nonsaponifiable fraction of liver of cancer-bearing patients, J. Nat. Cancer Inst., 12:1399, June 1952.
4. Penn, H. S.: Personal communication.
5. Penn, H. S.: Tumor lipoids: Part I. Preparation of a serologically active nonsaponifiable fraction of liver of cancer-bearing patients, J. Nat. Cancer Inst., 12:1389, June 1952.
6. Sprunt, D. H., Hale, W. M., Chang, F. C., Richmond, S. G., and Erickson, C. C.: Present status of cancer tests, Sci., 122:273, Aug. 12, 1955.

Management of Upper Gastrointestinal Hemorrhage

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CONTROL OF SERIOUS hemorrhage from the upper gastrointestinal tract theoretically should be secured by the surgeon just as active bleeding is treated in an external wound. Yet the operations necessary to do so are often so difficult that many physicians have preferred the variable results of conservative therapy rather than accept a high mortality from operation. Some surgeons, after experience with these difficult technical problems, also have decided it is safer to treat the acute phases of hemorrhage expectantly and to operate on the patient several weeks later if he survives.

This expectant attitude undoubtedly will result in the death of many patients, particularly those who are bleeding from erosions of the gastroduodenal artery or left gastric artery. It seems more logical therefore to assume that surgical control is the method of choice and that emphasis should be placed upon the technical means by which such operations can be made safer. Surgical therapy for many types of massive hemorrhage has been employed at the Massachusetts General Hospital for many years. From this experience many lessons have been learned. The following discussion is addressed particularly to clinical surgeons, and it deals particularly with the selection of patients for operation and proper operative techniques.

More particularly, it is concerned only with the major life-endangering hemorrhages that usually are described as massive or exsanguinating, since problems peculiar to the acute loss of blood are involved.

The definition of such a type of hemorrhage is necessarily somewhat elastic since objective criteria are difficult to set up. Stewart's statement that a massive hemorrhage is one in which the circulating red cell mass is reduced to 60 per cent or less of normal is as accurate as can be obtained today. However, unless an institution has been set up for special study, measurements of the blood volume are often difficult to obtain. A less accurate method, but one that provides an easy means of comparison, is to consider any patient who has had hemoglobin of 7 gm. or less per 100 cc. of blood at any time, or who has had five transfusions or more during the

• In the past few years gastric resection has become the therapy of choice for patients with massive hemorrhage from duodenal ulcer. When this is done as an emergency procedure the ability of the surgeon is often taxed to the limit. Although sometimes easy, control is often extraordinarily difficult. Many important technical details must be considered in order to attain a successful outcome. This method of therapy has proved to be very satisfactory with patients who are in good condition for operation, and even in the poorer risks seen on ward service has resulted in a surgical mortality of only 7 per cent in all patients less than 60 years of age treated for this extremely severe type of hemorrhage. In the older age groups mortality rates still remain high.

period of hospitalization, as one who has had a massive hemorrhage.

By these criteria, 516 patients with massive upper gastrointestinal hemorrhage have been observed in the Massachusetts General Hospital during the past five years. This figure again emphasizes the fact that massive hemorrhage is common. Many of the patients, however, are not candidates for surgical therapy, so that the surgical field is again restricted further.

A paper on this symposium by Dr. Cohn* has dealt with the emergency treatment of massive bleeding from esophageal varices, so that this group of cases need not be considered in detail. Suffice it to say that they now are a great challenge to surgeons. The death rate in Massachusetts General from these lesions remains very high. Operations for the control of such bleeding carry a high mortality rate (now is near 25 per cent) and, if the operation is survived, all too often liver failure results before a shunt can be performed.

Bleeding varices account for nearly one-third of all cases of massive upper gastrointestinal hemorrhage observed by the author; they will not be discussed. Other types of patients also must be excluded from any consideration of surgical therapy. Several systemic diseases are accompanied by such hemorrhage. For example, the terminal phase of nephritis often is manifested by upper gastrointestinal hemorrhage due to uremic ulcerations. Various forms of purpura or aplastic anemias may cause severe gastric hemorrhage. Consequently, a physi-

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*Cohn, Roy, Surgical treatment of bleeding esophageal varices, *California Medicine*, 83:348-352, Nov., 1955.

cian is an important part of the team in the diagnosis and management of such bleeding.

The surgeon is now left with a residuum of prospective patients who have bleeding from the various types of ulcer, from tumors, from gastritis and from hiatal hernia. If gastritis or hiatal hernia is the probable diagnosis, every attempt should be made to secure improvement by medical care and repeated transfusions. Emergency operations for the relief of bleeding from either one is likely to be quite unsatisfactory, and since the various tumors are relatively uncommon, emergency operation for massive bleeding is essentially that for gastric and duodenal ulcer. Bleeding from ulcer comprises nearly half of the massive upper gastrointestinal hemorrhages seen at Massachusetts General. Every such patient is considered as a candidate for emergency operation.

It follows that early diagnosis of the cause of the hemorrhage is essential. Often a definite history or even definite radiologic proof by previous gastrointestinal series is given. Even in these cases an emergency x-ray examination is carried out to exclude an ulcer in a difficult location. Examination of the esophagus, stomach and duodenum by Hampton's nonpalpation technique has proved very satisfactory, demonstrating the cause of the hemorrhage in nearly three-fourths of the cases. Caution is necessary, however. Varices may be collapsed from blood loss at the time of examination, ulcers may not fill, and blood clots may produce a confusing picture. However, if there is no definite history of ulcer and the results of roentgen examination are negative, a conservative approach is usually adopted. Transfusions are continued for several days if there is plenty of blood available, and operation is carried out only if there is a serious repetition of the hemorrhage, or if it continues steadily.

When definite diagnosis of hemorrhage from ulcer is made, the problem is simplified. As a general rule the patient should have an operation; the main consideration is to decide upon the safest time. Certain patients should be operated on very soon. These include those with gastric ulcer or anastomotic ulcer, and those with duodenal ulcer who are over the age of 50 years. Others are watched carefully and if there is any recurrent bleeding they are operated on at that time.

If an operation is to be carried out, at least four blood transfusions should be available with two large-bore intravenous needles in place. The operation should be planned for a time of day when there is sufficient personnel available. A skilled anesthetist is nearly as important as a trained surgical team. In no circumstances is the projected operation to

be conceived as a simple procedure that will succeed regardless of technique. It is essential that extreme care be taken in every detail.

Many are the problems encountered in the operating room. Not infrequently a patient has been known to take a few whiffs of gas, vomit a huge quantity of blood and drown. Hence, a Levin tube should be inserted and the stomach irrigated before operation. Since this procedure will not remove large clots, however, a cuffed intratracheal tube should be inserted under topical anesthesia and the cuff inflated before general anesthesia is induced. The safest anesthetic agents at present seem to be gas-oxygen-ether or cyclopropane.

The abdomen is opened through an incision that will give best access to the stomach and duodenum. Since many of the patients are fat, a curved subcostal incision, cutting both recti, is best. Vertical paramedian incisions are used if the costal flare is acute, or if the source of the bleeding is not definite.

As soon as the peritoneal cavity is opened, an attempt must be made to determine the source and to assess the severity of the hemorrhage. If a definite ulcer is present and the stomach and upper small intestine full of blood, it must be assumed that active bleeding is continuing and immediate gastrotomy with removal of the clots and the control of the bleeding is necessary. If there is a definite ulcer but the stomach and upper intestine are collapsed, a relatively leisurely resection can be carried out.

The greatest difficulty in diagnosis arises when there is no clear evidence pointing to the source of the bleeding. Then the stomach and duodenum must be palpated carefully. This may involve cutting through the omentum to enter the lesser omental bursa to secure more accurate palpation. Then the entire small bowel must be examined carefully from the ligament of Treitz to the ileocecal valve. If the source of bleeding still cannot be found, the surgeon can proceed with either a gastrectomy and duodenotomy or he may continue with the so-called "blind" gastric resection.

There are disadvantages in both procedures. Gastrotomy does not always permit identification of the source of bleeding. Bleeding from the incision often is a confusing factor, and the technique is bound to involve some contamination. On the other hand it will sometimes lead to rapid discovery of a hitherto unsuspected lesion.

If a "blind" gastric resection is carried out, several safeguards are essential. The duodenum is divided without clamps so that the specimen will not be damaged by such trauma. The resected stomach should be examined promptly by the pathologist, since minute ulcers may be difficult to find

a few hours later. Before closing the duodenum the surgeon should inspect and palpate the lumen very carefully in order not to overlook a deep ulcer in the ampulla. The same inspection is necessary at the upper end of the stomach before it is anastomosed to the jejunum.

When an ulcer is demonstrated, the operation to be carried out is the standard gastric resection. The condition of the patient improves as soon as the bleeding point is controlled and he should remain in good enough condition to permit an operation that should be carried out with dispatch but which should not cut corners. It may be expected that the technical phases of this procedure will be relatively easy in about two-thirds of the cases and extremely difficult in most of the remainder. Obviously the best procedure is actual excision of the ulcer, and, when it is done, an open closure of the duodenum should be carried out to be sure that no bleeding point has been overlooked.

The surgeon's ability will be taxed in two particular types of cases. In the first the ulcer is in the duodenum and there is a large inflammatory mass in the first portion of the duodenum and head of the pancreas. Here the surgeon may feel that excision of the ulcer is impossible or dangerous since it may be in the second portion of the duodenum, and he may decide that there is sufficient duodenum proximal to the ulcer to allow closure excluding the ulcer. If he carries out this exclusion procedure, it is imperative that he inspect the open duodenum very carefully. With these deep ulcers a lateral erosion of the gastroduodenal vessel is likely. This will call for ligation above and below the point of erosion, else hemorrhage is likely to recur a few days after the operation.

In other instances there may not be enough duodenum to allow satisfactory closure. In these circumstances, in the author's opinion, it is best to assure complete control of the bleeding and then close the stump about a duodenostomy catheter. Done in a proper fashion, this is a life-saving maneuver and one that is far preferable to a deep dissection along the head of the pancreas.

The other type of ulcer that causes a great deal of technical difficulty is the one high on the lesser curvature of the stomach. The surgeon may decide that total gastrectomy is the only method that will be satisfactory. He should remember, however, that total gastrectomy is a time-consuming operation that may not be very well tolerated by a very ill patient. In cases in which it is decided that the ulcer cannot be excised and closure secured without compromising the esophageal lumen, some surgeons have used a less radical procedure with success. The left gastric artery is ligated and divided near its origin, while the ascending branch is ligated by

suture ligature above the site of the ulcer near the esophageal hiatus and below the ulcer on the lesser curvature. Finally, complete control of the bleeding is secured by intragastric plication and the operation completed by a Madelener operation that involves resection of the distal three-quarters of the stomach, although the ulcer is left in situ. (The author has never had to use this method.)

After bleeding is controlled, a standard gastric resection is done. The type of anastomosis of the stomach to jejunum or duodenum needs no special consideration except that the one chosen should be the easiest which will avoid any angulation at the point of anastomosis. Since an anterior Hofmeister is more expeditious, it will usually be chosen in these circumstances.

Usually in these cases two catheters are placed in the jejunum. One runs back through the anastomosis into the stomach, providing decompression as long as necessary. This same decompression can, of course, be secured by the Levin tube, but retention of any nasal tube leads to increased difficulty with the respiratory tree and may be extremely serious in many of the old, poor-risk patients. The decompression tube will eliminate the dangers of late regurgitation and pulmonary aspiration that occur if the stomach has not been kept empty. This last factor has proved to be an important cause of death in aged, debilitated patients who have not had proper decompression. Meanwhile, a second catheter is inserted distally into the jejunum to provide alimentation in case stomal malfunction should occur. Much the same effect may be accomplished with the Alesen tube although, since its disintegration occurs about the seventh postoperative day, it does not serve for as long a time.

While some surgeons use these double jejunostomies routinely and others not at all, it is the author's opinion that they should be employed for specific indications, particularly in dealing with patients with bleeding ulcers, especially if they are old and malnourished, and have poor pulmonary reserve.

Finally, abdominal wall closure must be done with great care since dehiscence is a common complication in this poor-risk group. The liberal use of through-and-through sutures placed through the anterior rectus fascia but not through the peritoneum, well out of the line of incision, is the best way to take tension away from the sutures that close the peritoneum and fascia. Through-and-through sutures running through the peritoneum are to be avoided, for several instances of erosion of the underlying small intestine have been observed in connection with their use.

There are several details of postoperative care that merit emphasis. Antibiotic therapy is given, unless contraindicated, to aid in the prevention of pulmonary complications. Readjustment of the hematocrit to normal is carried out in two or three days when hemodilution has occurred and the photo-hemoglobin levels give a more accurate conception of the extent of anemia that is present. Overtransfusion must be avoided in the early stages; it can be as serious as undertransfusion. Extreme care is necessary with fluid and electrolyte replacement. Careful determination of the serum levels of electrolytes, avoidance of overtherapy with sodium, and the administration of adequate amounts of potassium are the most important features in the therapy.

The postoperative complications that are most common are pulmonary. Early ambulation, avoidance of abdominal binders, as little sedation as possible, and avoidance of gastric distention will eliminate most of them. Much more serious is the occurrence of pulmonary embolism. If the patient has a pulmonary embolus and survives, or if thrombophlebitis develops in either lower extremity, a bilateral femoral vein interruption should be carried out. Treatment with anticoagulants introduces an extra risk and is absolutely contraindicated if the ulcer has been excluded rather than resected.

Another postoperative complication that is very serious is recurrent massive hemorrhage. Several causes may be considered. Most commonly it occurs when a duodenal ulcer has been excluded and massive hemorrhage occurs one to five days later. If this is the case it is absolutely incumbent on the surgeon to reoperate on the patient to secure control of bleeding by ligature. A lateral erosion of the gastroduodenal artery will nearly always be fatal unless it is controlled. Of five patients at Massachusetts General Hospital who bled from this source, two were reoperated on and survived; the others died.

A second cause of hemorrhage is an inadequate suture line in the stomach. Usually such bleeding occurs immediately after operation but may occur as much as a week later. Usually it can be overcome by transfusions, but occasionally revision of the anastomosis is necessary.

When the resected stomach shows only extensive gastritis, a problem is presented, for postoperative hemorrhage can arise from the same disease in the gastric remnant. Here again an attempt is made to control the bleeding by transfusions. Powdered Gelfoam by mouth may be valuable. It seemed to help in a few cases observed by the author. In rare instances laparotomy and a total or near total gastrectomy may be necessary.

Finally the surgeon must consider the possibility that he has overlooked the actual source of bleeding, particularly if he did not carry out a thorough exploration and the pathologist could find no abnormality in the resected specimen. An uneventful postoperative course for ten days, followed by recurrent bleeding, is suggestive evidence that some lesion, such as a small bowel tumor, has been overlooked.

Other postoperative complications occur that are not specific, but are those which may follow any gastric resection. Consequently they will not be discussed in detail here.

The application of the foregoing principles by the author and his associates has been very gratifying. Sixty-four patients with massive hemorrhage from ulcer were operated on in the period 1946-1953. There were two deaths; both patients who died had had perforations several days before operation, one having general peritonitis and the other a large subhepatic abscess. Both died after a two-stage gastric resection, one from a perforated gallbladder and the other, a month later, from bleeding anastomotic ulcer. Meanwhile, six other patients had emergency operations for massive hemorrhage from some other source than ulcer. One patient died; he had a cirroid aneurysm at the fundus of the stomach which required total gastrectomy.

These methods have been applied, at least in part, to patients in the ward services. Here, many other factors enter. The patients are in poorer condition; alcoholism and extreme obesity are common; and generally the condition of the patient at the time of admittance after the hemorrhage is more serious than that of private patients. Many surgeons are involved, and decisions are harder to make and slower to translate into action. Postoperative nursing care is apt to be more sketchy. It is not unexpected that the mortality is considerably higher. However, even here, when one considers that these patients have had very severe hemorrhage (the average amount of blood required during their hospitalization was 5,500 cc.) the results have been very gratifying in patients below the age of 60. The surgical mortality is 7 per cent in patients below that age. In older persons it rises very sharply. Two points regarding aged patients are to be emphasized. The first is that operation should not be delayed and as soon as a diagnosis is made of massive hemorrhage from ulcer, operation should be carried out. The second is that attention to the technical details of operation and postoperative care are extremely important.

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The Challenge of Chronic Disease

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"NOTWITHSTANDING the great prevalence of chronic maladies, and the infrequency with which physicians are called upon to treat them, it is surprising that but few works have been published upon the subject, and those of a meager and unsatisfactory character, indeed, there is no single work extant that the author knows of, in any language, that is wholly devoted to the consideration of this class of disease—the material has existed, but it has been in loose and scattered portions."

These lines were written in 1867 by John King, professor of obstetrics and diseases of women in the Eclectic Medical Institute of Cincinnati. Although they were published some 90 years ago, it is a significant fact that they might almost have been written today. Even now, chronic illness as such is not a popular subject in the field of medicine. It has not inspired any great volume of literature since Dr. King penned his complaint; and what has been written is still "in loose and scattered portions."

Not until 1950 did the American Medical Association take action on the problems of chronic illness by joining with the American Hospital Association, the American Public Health Association and the American Public Welfare Association to form a Commission on Chronic Illness "for the purpose of studying the problems of chronic disease, illness and disability." Not until 1955 was this phase of medicine dignified with a monthly publication, the *Journal of Chronic Disease*.

What are the reasons for this? Why has chronic illness been such a step-child in the medical field? The first answer lies in tradition: Much of the burden of the care of the chronically ill has long been borne by people outside the medical world. The family, the social worker, the community, even the government—all have shared in the problem. The second answer lies in the fact that the medical imagination has been fired—and the greatest medical skill has been called forth—not by chronic illness, but by acute illness and by specific diseases. Modern medicine has found its greatest challenges—and done its greatest work—in bringing the virulent killers to terms. Our record during the past few decades is impressive; we have seen typhoid, diph-

- The increasing millions of people with chronic disease constitute the greatest challenge to American medicine today. It is only during the very few years just past that any comprehensive answer to this challenge has been initiated.

To physicians the most pressing needs in the total care of the chronically ill are:

1. Research in the care of the chronically ill as well as in the specific diseases causing chronic illness.
2. Coordination of all the services available in our communities.
3. Recognition by physicians of responsibility for the care of the chronically ill person, himself, as well as for treatment of his disease.

theria, tuberculosis, syphilis—to name only a few—yield to our research. And we are still pouring our energy, our time and our money into similar research programs. We are developing—almost daily—new wonder drugs, new vaccines, new treatments to overcome the diseases still rampant. This is necessary—and excellent—but it tends to dim our vision in recognizing a large and growing problem, a problem that promises to hold perhaps our greatest challenge in medicine today—that of the total care of chronic illness.

Paradoxically it is these very achievements in medicine which account for much of the increase in long-term illness. As the curve has gone down in the rate of acute disease, it has gone up in the rate of chronic disease. As life expectancy has increased, so has the incidence of chronic illness.

The changing pattern of the death rate from specific diseases in the United States during the past 50 years is shown in Table 1. Four specific types of disease are used to show the trend. Pneumonia, which may be considered a prototype of acute infectious disease, was listed as the primary cause in 9 per cent of all deaths in 1900. In 1952, it was down to 2.7 per cent. The relative incidence of death from tuberculosis, a second infectious disease which often progresses rapidly, dropped in the same period from 11.5 per cent to 1.6 per cent. Meanwhile malignant neoplasms rose in incidence from 3.6 per cent to 15 per cent, and heart disease, chiefly of the degenerative type, increased from 6.6 per cent to 37 per cent.

Chronic illness, then, has burgeoned as our medi-

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TABLE 1.—Percentage of total deaths due to four selected diseases—United States, 1901-1953*

	Heart Disease Per Cent	Cancer Per Cent	Pneumonia Per Cent	Tuberculosis Per Cent
1900.....	6.6	3.6	9.0	11.5
1910.....	9.9	5.1	6.7	10.7
1920.....	11.5	6.4	6.3	8.7
1933.....	16.62	10.0	6.5	5.6
1940.....	25.2	11.2	6.3	4.3
1950.....	36.9	14.5	2.8	2.3
1952.....	37.1	15.0	2.7	1.6

*Source: U. S. Bureau of Census, Mortality Statistics.

cal knowledge has increased. So has our population. From the combination of these two facts has come a staggering problem: Some 5.3 million people in the United States today are estimated to be long-term patients.

Who are these people? We know many of them as patients of ours. Some of them have the heart disease and the malignant neoplasms that are now high among the causes of death, as noted in Chart 1. Others limp about with one or another of the crippling, degenerative diseases with which we are all familiar. These are the people with whom we rarely have dramatic success. The antibiotics do not work miracles with them—we can not cure them with “shots” of a wonder drug. Bed rest may be an end for them rather than a means. True, we can sometimes relieve their pain and launch them on a course of therapeutic treatment, but by and large they are doomed to more or less prolonged inactivity and incapacity. Too many of them end up useless—and hopeless—members of our society.

And therein lies our challenge—in the total care of these millions of people. For while we are willing and eager to “give our all” in research in specific diseases, we are actually doing very little about this vast and growing army of the chronically ill.

It is time that we stopped and considered this: While we are placing so much emphasis on the problems of specific diseases—admittedly an extremely important thing—what are we doing about the problems of diseased people? Have we, in our zeal to conquer disease, actually come to care more about disease than about the persons afflicted with it?

We have some soul searching to do when we make our answer—when we consider the role that we, as physicians, are playing in the total care of the chronically ill. It is significant that one may pore at length over medical textbooks, review the etiology, symptoms, signs, and even treatment of various chronic diseases—and yet almost nowhere find reference to the long-term care of the chronically ill patient. Yet it is we, as physicians, who know better than anyone else how inseparably is the total care of the chronically ill bound up with the course of medical treatment. We see every day how the per-

sonal and social consequences of chronic illness play vital roles in the emotional and physical aspects of the disease process.

Who is undertaking the care of the chronically ill? As was mentioned previously, many persons enter into the picture. In our present society the active groups range from hospitals to families, from understaffed nursing homes to overcrowded veterans’ hospitals, from social workers to kindly friends. There are growing numbers of rehabilitation programs being undertaken; many agencies devoted to specific diseases have been organized; industry is coming to be aware of the manpower resources among the handicapped; and there is an increase in the awareness of the public.

For more of a close-up, a look at the picture in San Francisco may be helpful. In that city of about 800,000 people, there are estimated to be some 27,500 who have long-term disabling disease or impairment. San Francisco has the usual private health and welfare organizations, public and private institutions, one rehabilitation center, four government hospitals, 13 voluntary general hospitals, two medical school hospitals, two private and one public long-term hospitals.

This is more or less typical of the facilities in any large city. Something which is not typical, however, is the San Francisco Chronic Illness Service Center established by a group of interested citizens some four and a half years ago—established because, despite this array of community resources, it was obvious that families with chronically ill patients were not able to find the facilities and services they needed.

The San Francisco Chronic Illness Service Center is primarily a counseling and referral service for the chronically ill and those charged with their care. From its experience with these patients, it has collected information that pointed the way to other functions. The people it was set up to help were those who, faced with the need to arrange long-term care, did not know what facilities were available or how to go about getting them.

In 1954, 788 of these people came to the center as new patients (and another 360 as old patients). The general characteristics of these patients are summarized in Table 2. There were more than twice as many women as men in the group and the majority were widowed or single. The average age of the patient was 70 years and more than half of them were between 65 and 85. Less than one-third of the patients were bedfast.

The most common request was for 24-hour nursing or supervisory care, with housekeeper attendant service second in frequency. Commercial nursing and boarding homes still represent the main solution for requests of this type. More than 50 per cent of

TABLE 2.—Characteristics of patients interviewed at San Francisco Chronic Illness Service Center in year 1954

DEGREE OF DISABILITY					
Bedfast			246		
Ambulatory			380		
Semiambulatory			133		
Unknown			29		
LIVING ARRANGEMENTS					
Living alone			219		
Living with spouse			162		
Living with relatives			213		
Living with friends			19		
In nursing or boarding homes			53		
In hospitals			54		
In institutions			20		
Unknown			48		
AGE		SEX			
No.	Per Cent	No.	Per Cent		
Under 25	11	1.5	Male	252	32.0
25 - 34	23	3.1	Female	535	67.9
35 - 44	23	3.1	Unknown ..	1	0.1
45 - 54	35	4.6			
55 - 64	97	12.9			
65 - 74	190	25.2			
75 - 84	287	38.1			
85 - 94	83	11.0			
95 - over	4	0.6			
Unknown ..	35				
Average age 70.7 years					

MARITAL STATUS			
Married			197
Single			120
Widowed			312
Divorced or separated			39
Unknown			120

the patients were able to pay the prevailing rate for the service they required, as contrasted to 40 per cent in 1951, despite an increase in rates during this period, suggesting that ability to pay is only one factor.

The experiences of the Chronic Illness Service Center point up some of the most pressing needs in the field of total care of the chronically ill: The need for coordination of available community service; the need for much greater dissemination of infor-

mation; the need for a variety of services, not hospital beds only; the need for greatly improved home care.

Yet there are other even greater and more pressing needs—and this is where we as physicians come into the picture. Our first need is research in the care of the chronically ill as well as in the specific diseases causing chronic illness. This applies particularly to prevention and to rehabilitation—fields that are just now being opened up and given some exploration. In order to make this research effective, we must broaden considerably our medical scope; we must acquaint ourselves with the other groups working in the field of chronic illness; we must gather together from all sources all the available information about people who are chronically ill.

Our second need is to acquaint ourselves with all the facilities available in our communities. If none are available, we should initiate them. We should help coordinate these services and help make the community—including our industry—aware of the needs and potentialities of the chronically ill. In this regard it may be noted that home care offers many possibilities.

Our third need is our greatest—and our simplest: We must change our concept about our role in the total care of chronic illness. We must recognize the importance—and the potentialities—of the part we can play. We must assume our responsibility for the people who are chronically ill, as well as our responsibility for treating the diseases they have.

Only in this way can we begin to meet our great and growing challenge in the field of chronic illness.

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Complications of Peptic Ulcer in the Aged

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INCREASING INTEREST is being shown in the care of aged patients, owing largely to improved methods that have reduced the hazards of operations on older persons. Cole⁴ and others^{1,3,6} have observed that major operations may be well tolerated by elderly patients unless the procedure be of great magnitude, is done in an emergency or is associated with severe concurrent disease. This interest is also a result of the pronounced change in the population of this country during the past 50 years. At the beginning of this century only one in every 25 persons was 65 years of age or over; now the ratio is about one in 12.²

Although peptic ulcer has been considered a disease of young and middle aged persons, there have been recent reports that more than 20 per cent of the patients admitted for hospital treatment of peptic ulcer are over 60 years of age.^{10,11} At the Los Angeles County General Hospital during the 12 months ended June 30, 1954, some 35 per cent of the 964 patients admitted for conservative or surgical treatment of peptic ulcer were over 60 years of age. With a progressively increasing life expectancy it can be expected that this disease will continue to become more prevalent.

The etiological factors of this high incidence of peptic ulcer in the elderly are interesting to consider. One might expect that with the serenity of mind and the decreasing metabolic activity of old age, the factors that bring about ulcer would be reduced, but apparently this is not true. Vanzant¹² and co-workers studied the influence of age on gastric acidity and found only a slight decrease in the mean free acid after 60 years of age, but more of a decrease in men than in women. In studies of the gastric secretion of aged patients with peptic ulcer, it has been observed that in many cases there is pronounced elevation in gastric acidity. In addition to increased gastric acidity, vascular changes in the arteries of the stomach wall, as demonstrated by Meyer and Saphir,⁹ may decrease the normal blood supply and thereby impair the vitality of mucosal cells in the stomach and duodenum. In such circumstances ulceration might develop, even with normal

• Peptic ulcer is not an uncommon disease among the aged population. Thirty-five per cent of the patients admitted to the Los Angeles County General Hospital in a period of 12 months for treatment of peptic ulcer were more than 60 years of age.

The severity of this disease in the elderly group was evidenced by the high incidence of lethal complications requiring operation—one case in every four.

The mortality rate from operation for peptic ulcer complications is related to the factors of concurrent disease, the urgency of operation and the selection of a suitable operation.

acid values or with very little increase. Psychogenic factors such as loss of economic security, lessened ability to adjust to the stress of life, and other emotional disturbances may influence vascular and secretory change in the stomach and thus increase the susceptibility of the mucosa to injury.

In order to determine the severity of peptic ulcer in elderly persons, a study was made of the complications of peptic ulcer in 541 patients over 60 years of age who were operated on at the Los Angeles County General Hospital during a ten-year period from 1944 to 1953 (Chart 1). Approximately one patient in four above 60 years of age with peptic ulcer admitted to the hospital had severe complications requiring operation. It would appear from observations made on these elderly patients that they do not react to the pain of peptic ulcer as do younger patients, and they do not seek medical care until some severe complication occurs.

Perforation

Of the patients with acute perforation in this series, 68 per cent gave a history of previous symptoms of ulcer. Many of these patients complained of prodromal symptoms of pain or distress for a few days or weeks before the actual perforation occurred. The longer the duration of acute symptoms before operation, the higher the mortality rate. Over half of the patients had acute symptoms for more than 12 hours before operation was done, and in this group the mortality was twice as high as it was for those who had symptoms less than 12 hours. One factor in the delay of operation is the less dramatic onset of symptoms in many older patients, hence a tendency not to call a physician early. Another factor

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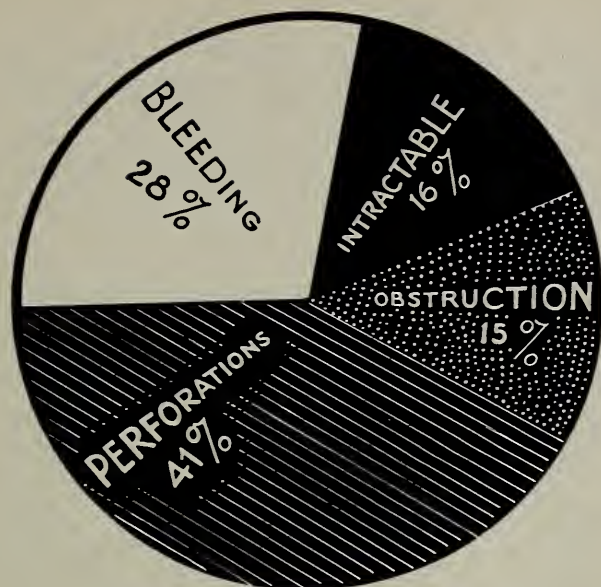


Chart 1.—Complications indicating operations for peptic ulcer in persons over 60 years of age—the incidence of occurrence in 541 cases of peptic ulcer at the Los Angeles County General Hospital during the years 1944 to 1953.

is that after the patient is in the hospital it may be several hours before a diagnosis is made, owing to atypical clinical signs and symptoms. The total mortality in 220 cases of perforation was 26 per cent (Table 1), a high rate for perforation, emphasizing once more that emergency procedures in the aged entail a much higher risk than elective operations. Simple closure was performed in 210 cases with a mortality rate of 25 per cent, but in the few in which gastric resection or additional procedures such as gastroenterostomy or pyloroplasty were performed, the mortality rate was 50 per cent. This was in sharp contrast to corresponding data on the patients who had subsequent elective operation for recurrence after perforation. In this latter group of 16 operations there were no deaths.

Hemorrhage

Bleeding was the most common complication. It occurred in 53.4 per cent of patients in this series. Hemorrhage was severe enough in 28 per cent of these cases to be the primary indication for operation. In approximately two-thirds (63.5 per cent) of this group the bleeding was classified as massive, as indicated by systolic blood pressure below 100 mm. of mercury, hemoglobin content 7.5 gm. or less per 100 cc. of blood, and bleeding not controlled with multiple transfusions. It has been observed that both the frequency and mortality of bleeding from peptic ulcer increases in direct proportion to the age of the patient.⁷ In cases in which hemorrhage including massive hemorrhage was the chief indication for gastric operation, the mortality

TABLE 1.—Data on surgical treatment of peptic ulcer perforation in patients over 60 years of age

Operation	Cases	Deaths	Mortality Rate (Per Cent)
Closure of perforation	210	52	25
With gastroenterostomy	3	3	50
With pyloroplasty	2	1	
With appendectomy	3	0	
Gastric resection	2	1	
Total	220	57	26

TABLE 2.—Data on operations for peptic ulcer hemorrhage in persons over 60 years of age

Operation	Cases	Deaths	Mortality Rate (Per Cent)
Gastric resection	106	27	25
Vagotomy and pyloroplasty	27	5	19
Wedge excision of ulcer (gastric)	5	1	
Vagotomy and gastroenterostomy	4	0	
Vagotomy	4	1	
Pyloroplasty	4	0	
Suture bleeding vessel	1	1	
Total	151	35	23

rate was 23 per cent, but when bleeding patients could be operated on electively during a remission the mortality rate was only 9 per cent.

The operative procedures most frequently used in the present series to stop bleeding were gastric resection and vagotomy with pyloroplasty (Table 2). Further observation is required for the evaluation of the long term results of the latter operation. The operative procedure of choice for hemorrhage is one which will stop the bleeding immediately and also provide definitive treatment of the ulcer. In acute bleeding duodenal ulcer a longitudinal incision is made through the anterior wall of the stomach and duodenum crossing the pyloric ring. A transfixion suture is taken in the base of the ulcer to control the point of bleeding. After the hemorrhage has been controlled at operation the condition of the patient usually responds sufficiently so that a definitive procedure may be performed. Occasionally even after control of the hemorrhage and multiple transfusions having been given during the operation, the patient's condition will not show improvement. In such a situation suture of the bleeding vessel without further definitive surgery is justified.

Obstruction and Intractability

Approximately one-third (31 per cent) of the patients in the series required operation for pyloric obstruction or intractability. Of the patients with obstruction, 26.8 per cent had a history of previous perforation and one patient had had three perforations before definitive operation was done. Gastric resection was the operative procedure most commonly carried out. It was associated with a mortality

TABLE 3.—Data on operations in cases of peptic ulcer obstruction and intractability in patients over 60 years of age

Operation	Cases	Deaths	Mortality Rate (Per Cent)
Gastric resection	111	12	10.8
Pyloroplasty and vagotomy	25	1	4.0
Gastroenterostomy	16	2	12.5
Gastroenterostomy and vagotomy	12	2	16.6
Vagotomy	4	0	
Closure penetrating ulcer	1	0	
Wedge resection ulcer (gastric)	1	0	
Total	170	17	10.0

rate of 10.8 per cent (Table 3). Duodenal stump leakage was present in three of the 12 patients who died following operation. When resection is attempted in the presence of considerable edema and induration surrounding the ulcerative area the risk of leakage is increased. The delay in wound healing present in the aged could be a further causative factor in the increase in duodenal stump leakage. The patients who had vagotomy with gastroenterostomy were considered the poorer risk patients, and the mortality rate was higher (Table 2).

The mortality resulting from surgical treatment of peptic ulcer in the aged is related to three important factors: The presence of concurrent disease, the urgency of operation and the selection of the operative procedure.

Concurrent disease may be controlled to some extent before operation, but continues to pose a constant risk. This is demonstrated by the fact that the mortality rate due to all causes in patients over 60 years of age at the Los Angeles County General Hospital is 18 per cent, only a little less than the mortality rate for patients in the same age group operated on for peptic ulcer—20 per cent.

The urgency of operation is a very large factor in the mortality of the patients operated on for peptic ulcer. Excluding the cases of perforation and massive hemorrhage in which operation had to be done in emergency, the mortality rate in which elective operation was done in the old age group is 9.7 per cent. It would appear from these findings that there could well be increased attention given to indications for elective operation in peptic ulcer of the elderly in an attempt to prevent the frequent serious complications.

The selection of an operative procedure is influenced by the condition of the patient, the urgency of operation, and the kind of complication. The data from this study would support the following criteria for choosing a suitable operation in the treatment of peptic ulcer complications. Gastric resection is a procedure which produces very satisfactory definitive results, but entails a considerable mortality rate if used routinely. Its use for acute

perforation of peptic ulcer in the aged is not indicated because of the associated high mortality rate. In cases of massive hemorrhage with the patient in poor condition, ligation of the bleeding point followed by pyloroplasty and vagotomy can be done with a lower mortality than with gastric resection. In elective situations, gastric resection can be performed with a mortality of less than 10 per cent, and vagotomy with pyloroplasty can be done with a mortality of less than 5 per cent. Pyloric obstruction or a penetrating duodenal ulcer may be associated with so much inflammatory reaction or chronic induration that vagotomy and gastroenterostomy may be the operation of choice. Gastroenterostomy without vagotomy has been frequently recommended as a satisfactory procedure for peptic ulcer in the aged, especially for the complication of pyloric obstruction.⁵ This operation in the present series was not an adequate procedure to prevent the formation of stomal ulcer even in patients who are in the older age group. There were nine cases of marginal ulcer following gastroenterostomy in patients over 65 years of age, the oldest being 78 years old. The interval between gastroenterostomy and the occurrence of bleeding varied from four months to more than 20 years. In contrast, after adequate gastric resection there was no case of proven marginal ulcer. A possible explanation for these results may be found in the observation that gastric acidity in patients with pyloric obstruction was not found to be uniformly decreased. Measurement of free acid in these patients did not follow any pattern, but varied from hypochlorhydria through normal values to hyperchlorhydria.

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REFERENCES

1. Bosch, A. T., Islani, A., Tarr, C. T., and Beling, C. A.: The elderly surgical patient, *Ann. Surg.*, 64:269, March, 1952.
2. Bureau of the Census, U. S. Dept. Commerce, Aug., 1954.
3. Carp, F.: Operative mortality in geriatric surgery, *Int. Abst., Surg., Gynec., and Obst.*, 87:1, July 1948.
4. Cole, W. H.: Operability in the young and aged, *Ann. Surg.*, 138:145-157, Aug. 1953.
5. Cooper, W. A.: End results in the treatment of peptic ulcer by posterior gastroenterostomy, *Surgery*, 23:425, 1948.
6. Estes, W.: Mortality in surgery of the aged, *Penn. Med. J.*, 52:937, 1949.
7. Ivy, A. C., and others: *Peptic Ulcer*, Blakiston, 583-584, 1950.
8. Lahey: *Surgical Practice*, Saunders, 255-256, 1942.
9. Meyer, J., and Saphir, O.: Peptic ulcer in the aged, *Am. J. Digest. Dis.*, 10:28, 1943.
10. Mulsow, F. W.: Increase in peptic ulcer in the aged, *Am. J. Digest. Dis.*, 16:383, 1949.
11. Rafsky, H. A.; Weingarten, M., and Krieger, C. I.: Onset of peptic ulcer in the aged, *J.A.M.A.*, 136:739, 1948.
12. Vanzant, F. R., and others: Complications of peptic ulcer in the aged, *Arch. Int. Med.*, 49:345, March 1932.

The California Morbidity Survey

A Progress Report

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FOR SOME TIME now the California State Department of Public Health, as well as other agencies concerned with health, has been acutely aware of the lack of information regarding the health status of the population.⁴ This has been especially true in regard to current knowledge of general morbidity. Special studies have provided fragmentary data covering limited geographic areas for specific illnesses. In addition, some information has been forthcoming from death certificates and some on diseases for which reporting has been required. The sum total of all of these, however, has been far from comprehensive.

For these reasons the Department began, in 1948, to explore the possibilities of undertaking research in the measurement of general morbidity. Representatives of the California Medical Association, California Physicians' Service, Association of California Hospitals, University of California School of Public Health, Stanford University, California Conference of Local Health Officers, State Department of Employment, and the State Department of Industrial Relations agreed to serve as a Project Advisory Committee. A number of approaches were discussed. One of these would involve studies of special population groups or disease categories. This method, however, was subject to at least two serious objections. First, it is of limited value when the subject under investigation is the range of morbidity rather than a single disease or group of diseases. Second, the method would be too expensive. It was also decided that any attempt to obtain data on general illness through the vehicle of physicians' reports would result in an unreasonable demand upon the physicians' time and would, in fact, be unworkable.

After about two years of discussion and planning, the funds to begin the current project became available, in May 1950, through a grant from the National Institutes of Health. The investigation proceeded in two phases.

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• In May of 1954 the California State Department of Public Health began a one-year household sample survey covering the health status of the population of California.

Preliminary results from the survey indicate that chronic conditions cause approximately three-quarters of the disability in the California population, while acute conditions are responsible for the remainder. Acute upper respiratory tract disorders account for about half of the total disability from acute conditions. In the older population group, there is a greater amount of disability outside than within metropolitan areas. No significant differences in disability status appear between recent migrants to California and longer term residents.

Forthcoming results from the survey, answering more detailed questions, will provide information needed by a number of private and state agencies.

Phase One—The San Jose Study

Before starting the survey on a statewide basis, it was decided to pretest alternate methods in a limited area. The city of San Jose was selected for the pretest because it was an area in which the population was reasonably typical of the population of the state, the community was more or less self-sufficient with respect to medical facilities, and the area was large enough to permit the drawing of methodological conclusions. Accordingly, an intensive study was conducted in San Jose in the spring of 1952. The results of the San Jose household survey were compared with data gathered from hospital records and other medical records in order to test their validity.² Information gained from the study in San Jose led to the choice of the procedures to be used in the statewide project.¹

Phase Two—The Statewide Survey

The results of the San Jose pretest having proved satisfactory, the statewide morbidity survey began in May 1954 and was scheduled to continue for one year. It embraced a sample of 12,000 households or approximately 35,000 persons. Each week interviews are conducted with about 250 households throughout the state. For selecting the sample the State Health Department contracted with the United States

**TABLE 1.—Number of persons disabled on average day by selected conditions (provisional data)
May 1954-January 1955**

Conditions	Estimated Number Persons per 1,000	Per Cent
All conditions	63	100
Chronic conditions*	46	73
Diseases	39	62
Effects of earlier injuries....	7§	11
Acute conditions	17	27
Upper respiratory†	7§	11
Gastrointestinal‡	2§	3§
Other	8§	13

*In addition to conditions such as heart disease, asthma, diabetes, etc., which are normally classed as chronic, this category includes any other conditions which have lasted three months or longer or which have caused chronic or repeated trouble.

Sixth revision International List Numbers: (†) 470-481. (‡) 048, 049, 482, 544.2, 543, 571, 784.1, 785.5 and 785.6.

§ Relative sampling error greater than 10 per cent.

Source: State of California, Department of Public Health, Bureau of Chronic Diseases, California Health Survey.

Census Bureau, since it appeared that this operation could be best performed by an agency experienced in large scale sampling.

The questionnaire that is used obtains information on all types of illness or injury. In addition, a substantial amount of demographic and social information is gathered, such as data on age, sex, marital status, occupation, urban or rural residence, and type of health insurance coverage.

Although data collection for the survey is not yet completed, it has been possible to obtain some preliminary illustrative data from the first 42 weeks of the survey, covering the period May 1954 through January 1955.

Table 1 illustrates the relative contribution of various broad categories of disease to total disability. Days of disability as counted in the survey include all days on which a person was kept in bed, kept from going out of doors, or otherwise kept from his usual activities because of illness or injury. Each day in the period, on the average, 63 of every thousand Californians were disabled. Of these, approximately three-quarters were disabled by chronic conditions. In addition to conditions such as heart disease, asthma and diabetes, which are normally classed as chronic, the "chronic conditions" reported here also include any other conditions which have lasted longer than three months or which have caused chronic or repeated trouble. The remaining one-fourth of the disabled were affected by acute conditions. Almost half of the persons disabled by acute conditions were disabled by acute upper respiratory diseases.

Table 2 indicates the average number of persons in broad age groups who were disabled by acute upper respiratory and acute gastrointestinal disorders on the average day in the period May 1954-June 1955. The proportion disabled by respiratory

**TABLE 2.—Number of persons disabled on average day by all conditions, acute upper respiratory,* acute gastrointestinal disorders† (provisional data)
May 1954-January 1955**

Age	Estimated Number of Persons per 1,000		
	All Conditions	Acute Upper Respiratory*	Acute Gastro- intestinal Disorders†
All ages	63	7§	2§
0-14 years	44	15§	2§
15-44 years	47	5§	2§
45-64 years	79	5§	2§
65 years and over.....	179	4§	2§

Sixth revision International List Numbers: (*) 470-481. (†) 048, 049, 482, 544.2, 543, 571, 784.1, 785.5 and 785.6.

§ Relative sampling error greater than 10 per cent.

Source: State of California, Department of Public Health, Bureau of Chronic Diseases, California Health Survey.

**TABLE 3.—Number of persons disabled on average day by metropolitan* and nonmetropolitan areas (provisional data)
May 1954-January 1955**

Age and Sex	Estimated Number of Persons per 1,000		
	Total	Metropolitan Areas	Nonmetro- politan Areas
All ages, total	63	61	72
Male	56	54	65§
Female	70	68	80§
0-14 years, total.....	44	45	41§
Male	44	44§	44§
Female	43	45§	37§
15-44 years, total.....	47	47	47§
Male	34	33§	39§
Female	58	58	55§
45-64 years, total.....	79	77	91§
Male	74§	74§	71§
Female	84§	79§	113§
65 years and over, total	179	163§	251§
Male	172§	155§	238§
Female	186§	169§	265§

*Metropolitan areas include the following counties: Alameda, Contra Costa, Fresno, Los Angeles, Marin, Orange, Sacramento, San Bernardino, San Diego, San Francisco, San Joaquin, San Mateo, Santa Clara, Solano. (See U. S. Bureau of the Census, U. S. Census of Population: 1950. Vol. II, Characteristics of the Population, Part 5, California, Chapter B. U. S. Government Printing Office, Washington, D. C., 1952, pp. v-vi, xvi.)

§ Relative sampling error greater than 10 per cent.

Source: State of California, Department of Public Health, Bureau of Chronic Diseases, California Health Survey.

disorders is substantially greater in childhood than in later life, while the proportion disabled by acute gastrointestinal disorders shows little variation with age.* These data suggest, of course, the operation of some immunity or exposure factor in acute upper respiratory disease, which is quite different from that in acute gastrointestinal disease.

Table 2 also indicates that approximately one-third of all disability during the first 14 years of life is due to acute upper respiratory conditions.

Table 3 compares the average daily disability in metropolitan areas, where about 80 per cent of Californians live, with that of corresponding age-sex groups in the nonmetropolitan (principally rural)

*Similar age differentials are observed when all respiratory and gastrointestinal conditions are considered, regardless of whether or not they caused disability.

areas in the state. In general, up to the age of 45 years, the disability rates are about the same in each area. Thereafter, average daily disability is greater for females in the nonmetropolitan areas, and after age 65 it is greater for males as well.

Table 4 examines the question as to whether there are differences in the health status of recent migrants to California, compared to long-term residents. At ages above 15 years, only slight differences in average daily disability appear between comparable age groups.

The findings here presented regarding the distribution of broad categories of illness within selected segments of the population is only a small sector from the range of materials which will emerge from the analysis of the California Health Survey.

It is anticipated that the statewide morbidity survey will bring to light facts which will be of great value in answering such questions as:

1. What are the major and minor causes of illness today in California?
2. How much time is lost from work because of rheumatism, heart disease, diabetes, home accidents?
3. How many persons are there in California who require partial or complete nursing care?
4. What changes in health status occur after age 65?
5. How does hospitalization experience vary by age, sex, veteran status, health insurance coverage, and other population characteristics?
6. What kinds and amounts of illness occur in the various occupational groups?
7. How are smoking practices related to selected types of morbidity?
8. What is the volume of medical care services in the population, and how are they distributed with regard to type of service, and place where medical attention is rendered?

The answers to these and other questions will aid physicians, voluntary agencies, and health departments in evaluating the progress being made in the reduction of specific diseases. Also, such information will yield indices of the health status of various population groups. Thus, morbidity information needs of a number of private and state agencies will be met.³

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REFERENCES

1. Allen, G. I., Breslow, L., Weissman, A., and Nisselson, H.: Interviewing versus diary keeping in eliciting information in a morbidity survey, *Amer. J. of Pub. Health*, 44:919-927, July 1954.

TABLE 4.—Number of persons disabled on average day by length of residence in California* (provisional data)
May 1954-January 1955

Present Age	Estimated Number of Persons per 1,000		
	Total	—Last Move to California— 1941 and Before† After 1941	
All ages	63	67	57
0-14 years	44	‡	‡
15-44 years	47	44	49
45-64 years	79	81	76§
65 years and over.....	179	177	186§

*The questions were: "Have you ever lived any place besides California, not counting time away at school or in the Armed Forces?" (If yes) "When did you last move to California?" (†) Or has always lived in California.

§ Relative sampling error greater than 10 per cent.

‡Data not comparable.

Source: State of California, Department of Public Health, Bureau of Chronic Diseases, California Health Survey.

2. Belloc, N. B.: Validation of morbidity survey data by comparison with hospital records, *J. Amer. Stat. Assn.*, 49:832-846, Dec. 1954.

3. Breslow, L. A., and Ott, N. C.: The California statewide morbidity survey, *Calif. Health*, 11:161-164, April 1954.

4. Weissman, A.: California morbidity research project, *Amer. J. Pub. Health*, 42:711-716, June 1952.

APPENDIX

Definitions and Explanations

Source of data. Information on illness in the population of California is obtained through personal interviews of a weekly sample of households throughout the state selected by scientific sampling methods. The data for this report are based on the combination of 42 weekly samples, comprising about 10,500 households. The sample in Los Angeles County was doubled for sample weeks 27 through 38. Data presented are provisional, and are subject to sampling and other fluctuation.

Population coverage. The data presented relate to the resident noninstitutional population of California, exclusive of persons living on military posts. Thus, this report does not cover nonresidents of California, persons living on military posts, inmates of penal institutions, homes for the aged, infirm, and needy, mental institutions, tuberculosis sanitariums, and similar places.

Reliability of estimates. Since the estimates are based on a sample, they may differ somewhat from the figures that would have been obtained if all households, rather than a sample, had been interviewed, using the same questionnaire, instructions and interviewers. As in any survey work, the results are also subject to errors of response and of reporting.

Sequelae of Encephalitis

Report of a Study After the California Epidemic

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ENCEPHALITIS has a variety of causes—infectious, chemical, allergic, and some yet undetermined. In the infectious group, viruses, bacteria, rickettsiae, fungi and protozoa may be culpable.

Of the many viruses, two in particular cause encephalitis of kinds commonly encountered during the summer months in the California Central Valley. These two—the Western equine and the St. Louis types—have certain features in common. They are both transmitted by the mosquito. The reservoir of infection is thought to be birds, with man an incidental victim. Both cause similar clinical illnesses. The two viruses are similar and are classified as being of the arthropoid-borne variety. The Western equine virus was isolated in 1938 and the St. Louis virus in 1939. It was not until 1945 when paired specimens of blood were used to measure the rise in titer that accurate serological data were available and could be used by the California State Virus Laboratory to definitely identify suspected cases of Western equine or St. Louis encephalitis. The number of confirmed cases of encephalitis for each year from 1945 to 1954 inclusive is shown in Table 1.

Of 753 cases of infectious encephalitis reported to the State Department of Public Health in the 1952 epidemic, 428 were confirmed as either Western equine or St. Louis, and 84 were reported as "inconclusive." Reviews covering epidemiology, vector control, clinical and laboratory diagnosis and neurological and psychiatric sequelae in the 1952 epidemic were published in 1953.^{1, 4, 5, 6, 7} Because of this sizable case material, a group was formed to review the acute illness, the convalescent phase, the resulting sequelae and the late complications of these infections. The first detailed report of this group appeared in April, 1955.² This included a review of 334 positive and "inconclusive" cases from the 1952 group, as well as 113 cases from the 1950, 1951 and 1953 records. The "inconclusive" cases were those in which there was a suspiciously high antibody titer in the beginning and no rise later, those in which there was some rise in the initial

• In a study of almost 500 patients to determine residual effects, the sequelae of both St. Louis and Western equine encephalitis were more prominent in the younger age group. Infants under three months with Western equine encephalitis had the greatest central nervous system damage. Forty-four per cent of this entire group had sequelae.

In patients between one and four years of age, the incidence of sequelae was less. The Western equine infection was associated with the more disabling residual damage. Postencephalitic convulsions were fairly common in the younger patients with Western equine disease, but not in the St. Louis group. After the age of five the sequelae rate dropped. In all age groups the Western equine residual changes were more severe than the damage of St. Louis infection.

Some infants, children and adults showed remarkable improvement from sequelae even as much as two years after the abnormalities occurred.

With the longer period of follow-up, some late sequelae were noted in children and adults, primarily among those who had Western equine infection.

titer but not high enough to be diagnostic and those in which there was only one suspicious specimen.

For purposes of the study herein reported, "inconclusive" cases were omitted and confirmed cases from the period 1945-1950 and from the year 1954 were added, making the total number of confirmed cases 494, of which 362 were Western and 132 St. Louis. Since the proposed study is only half completed, it was felt that a more critical analysis could be made by using only the proven cases. At a later date when more definite laboratory data may be available and further follow-up material obtained, the "inconclusive" group will again be analyzed. The tentative conclusions reached in this presentation are being drawn from observations on the confirmed group only. By reviewing nearly 500 cases and by increasing the observation span from four years, as originally reported, to almost ten years it was possible to get a better view of long-term residual effects and possible delayed complications of these diseases.

It should be emphasized that the present report deals only with the group of 494 patients who were

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examined, not the 953 total number of cases (Table 1).

One of the outstanding features of these diseases is the age of the patients who had them. Forty-nine per cent of all the cases of Western equine encephalitis and 35 per cent of all the St. Louis cases were in patients under 10 years of age; and 28 per cent of patients in the Western equine group were less than one year and 20 per cent less than three months of age. None of the four patients who had St. Louis encephalitis when less than one year old has yet been examined. Beyond the age of ten years, the Western equine cases were fairly evenly distributed, while the St. Louis cases were concentrated in the young adult group.

SEQUELAE

In general, the younger the patient, the higher the incidence of sequelae. The highest incidence of sequelae was in infants under three months of age. Forty-four per cent of the patients in that age group had residual effect and the sequelae were the most severe, often including a continuation of convulsions, pronounced pyramidal and extrapyramidal signs, along with mental retardation. In some cases there were only mild motor signs or convulsions that were controlled by medication. Usually in cases of continuing convulsions there was no period of respite from them after the acute phase of the disease, although in a few instances there were periods of 12 to 18 months without convulsions before they resumed. Of the 72 patients less than three months of age, 19 had mental retardation (with or without motor and convulsive disorders) of sufficient degree to make placing them in an institution seem a future possibility.

Some of the infants who were originally reported as having serious sequelae later improved considerably and some that had milder but definite residual effects became entirely normal. On the other hand, one child had encephalitis at two months, had no evident residual effect and did well for another 15 months. Then left hemiplegia, convulsions and mental deterioration developed without evident cause. Thorough neurological study was carried out and there was no evidence of damage from a new infection, injury or space-occupying lesion.

The incidence of sequelae in patients more than three months and less than one year of age was around 25 per cent. These infants had less extensive cerebral damage. The convulsions were more easily controlled and both motor impairment and mental retardation was less. Some of these infants also showed pronounced improvement in six to eighteen months.

In patients between the ages of one and four

TABLE 1.—Number and percentage of Western equine and St. Louis encephalitis patients examined, by year of illness

Year of Illness	Total Patients	Patients Examined	
		Number	Per Cent
1945.....	54	4	7
1946.....	28	2	7
1947.....	38	11	29
1948.....	2	1	50
1949.....	31	7	23
1950.....	160	77	48
1951.....	55	28	51
1952.....	428	295	69
1953.....	36	18	50
1954.....	121	51	42
Total.....	953	494	52

years, there were about as many cases of St. Louis as of Western equine encephalitis, and in both groups the incidence of sequelae was about 25 per cent. In the St. Louis cases there was only mild pyramidal damage without retardation or convulsions. (It should be noted that in no case of St. Louis encephalitis, in children or adults, in which examination was carried out were there any convulsions after the acute illness.) In the Western equine cases there were more extensive pyramidal and extrapyramidal involvement and convulsions, but only occasionally retardation in this age group. One patient discharged from the hospital as a "vegetable" was essentially normal after 18 months. Until recently it was believed that unless a child had convulsions during the acute illness, it was unlikely that convulsions would occur later. Now, however, a child who had no convulsions during the acute illness has had generalized convulsions 18 months later.

Many of the patients from five years of age on up, some who had had St. Louis and some Western equine infection, were described as being nervous and irritable. This lasted from two months to two years after the acute illness. Since these symptoms completely disappeared, they are not now considered as sequelae, although at the time of the first report, when many of the patients still had these symptoms, they were recorded as sequelae.

In the five to nine age group, both the St. Louis and the Western equine viruses caused motor damage and mental retardation. For both diseases the incidence of sequelae was only around 10 per cent. In this age group also the residual effects of Western equine infection were more severe and associated with seizures.

In patients above the age of ten there were no significant sequelae of St. Louis encephalitis, with the possible exception of one elderly woman in whom bilateral cerebellar and extrapyramidal signs developed; and there is some question as to whether or not these signs might be related to vascular accident. There was likewise a low incidence of residual

effect from Western equine infection, but there were cases of motor damage, seizures, intellectual deterioration and emotional disturbances. One patient, a man 73 years of age, who was severely ill and comatose with Western equine encephalitis in 1950, was mentally retarded and emotionally labile after the acute phase. His condition was essentially static for two years, and then a peculiar syndrome developed—a sudden sea lion-like bark with symmetrical jerking of all four extremities for one to two minutes, without change in consciousness. These spells in part resembled the “cerebellar fits” of Hughlings Jackson. Because of the deteriorated state of the patient and the frequency of these spells, he was put into an institution for a while. Later he returned home.

Signs of Parkinsonism developed in two patients. One had Western equine encephalitis at age 57 in 1950 but not until 1954 did signs of a left-sided rigidity, tremor and cogwheel rigidity appear. The other had encephalitis in 1952 and when examined in 1955 had mild Parkinsonian signs in the face and in gait. Three patients had acute psychotic episodes after Western equine infection, and had to be hospitalized. A fourth had milder emotional changes, but moderately severe intellectual damage.

Fulton and Burton,³ who made a study of cases of Western equine encephalitis in Saskatchewan, Canada, noted the high incidence of residual changes in children. With this in mind, they wondered if unrecognized cases in adults would later produce

mental symptoms. They performed neutralization blood tests on patients in two mental hospitals and found a significant titer in far more of them than would be statistically ordinary. By review of records it was found that some of these patients had had clinical encephalitis two to four years previously. Those observations are compatible with findings in the present study that adults may develop serious postencephalitic residuals after three years of normalcy.

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REFERENCES

1. Finley, K. H., and Chapman, W. M.: The 1952 outbreak of encephalitis in California—long term neurologic and psychiatric studies of sequelae, *Calif. Med.*, 79:94-96, Aug. 1953.
2. Finley, K. H., et al.: Western equine and St. Louis encephalitis: Preliminary report of a clinical follow-up study in California, *Neurology*, 5:223-236, April 1955.
3. Fulton, J. S., and Burton, A. N.: After effects of Western equine encephalitis in man, *Canadian Med. Assn. J.*, 69: 268-272, Sept. 1953.
4. Hollister, A. C., Longshore, W. A., and Dean, B. H.: The 1952 outbreak of encephalitis in California—epidemiologic aspects, *Calif. Med.*, 79:84-90, Aug. 1953.
5. Kokernot, R. H., and Longshore, W. A.: The 1952 outbreak of encephalitis in California—differential diagnosis, *Calif. Med.*, 79:73-77, Aug. 1953.
6. Lennette, E. H., Nyberg, M. C., et al.: The 1952 epidemic of encephalitis in California—laboratory methods for etiologic diagnosis, *Calif. Med.*, 79:78-83, Aug. 1953.
7. Stead, F. M., and Peters, R. F.: The 1952 outbreak of encephalitis in California—vector control aspects, *Calif. Med.*, 79:91-93, Aug. 1953.



Emphysema in Chronic Bronchitis and Asthma

A Practical Therapeutic Approach

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VERY OFTEN discussions of asthma and chronic bronchitis are ambiguous because of a tendency to regard these terms as self-explanatory, to assume that each represents a well-known and well-defined disease process. The fact is, there is no basis upon which sharp distinctions can be made between the two conditions. In the clinic, one occasionally observes a patient with a history of infrequent and transient attacks of wheezing, and sometimes one sees patients with continuous obstruction, but in the great majority of patients with a complaint of bronchial obstruction not due to a tumor mass or foreign body, the disease lies somewhere between the two extremes.

Furthermore, differentiation cannot be made between asthma and chronic bronchitis on etiological grounds, since both involve allergy, infection and very often a good deal of the unknown in addition. The pathological features are also similar. The most characteristic pathological appearance in both conditions is a thickening and infiltration of the mucous membranes, although the lungs in acute spasmodic asthma have been described as showing greater hypertrophy of bronchial musculature than is characteristic of chronic bronchitis. Tenacious secretions are a prominent feature of both conditions.

Thus, on the basis of present knowledge, it is likely that we are dealing with one rather amorphous syndrome whose clinical manifestations may vary widely, rather than with two distinct conditions. However, for purposes of discussion some kind of distinction is necessary. In terms of the present discussion, the most important basis for distinction between asthma and chronic bronchitis is the permanence of the consequent damage to lung structure.

Both conditions, of course, cause overinflation of the lung—a generalized obstructive emphysema which is clinically different from, for example, senile and compensatory emphysema. It is proposed here to use the term *asthma* for the condition in which this generalized obstructive emphysema is reversible, and to classify cases in which emphysema is irre-

• Asthma and chronic bronchitis are characterized by bronchial occlusion in expiration. Acute spasmodic asthma, if prolonged, may bring about changes in thoracic structure and diaphragm position which can result in permanent pulmonary inefficiency unless this tendency is corrected by breathing exercises. As expiratory obstruction becomes more chronic, irreversible emphysema develops. Thereafter therapy for bronchopulmonary insufficiency is necessary. The approaches to such therapy have been outlined and briefly evaluated, with emphasis upon the value of intermittent positive-pressure therapy.

versible as *chronic bronchitis*. This is of course no simple distinction to make, but it is nevertheless a useful clinical basis for distinguishing the two conditions in order to plan treatment.

ASTHMA

Acute spasmodic asthma is observed most frequently in children and young adults, although it often occurs in later life also. Whether or not there will be secondary consequences that must be treated depends upon the duration of the condition. During the acute attack, severe overinflation of the lung occurs as a transitory phenomenon. If acute attacks occur often enough and last long enough, asthma may pass insensibly into chronic bronchitis—that is to say, permanent obstructive emphysema will develop. However, the authors have observed a number of young adults with a history of severe childhood asthma that disappeared in the early teens, leaving no detectable loss of elasticity of the lungs, although in some cases there was more or less respiratory insufficiency due to malformation of the chest cage.

A child who spends a good deal of his life attempting to breathe out from overinflated lungs frequently develops a typical pigeon chest. The physiological basis for this is easy to understand. The chest is held for considerable periods of time in the hyperinflated position. During these periods powerful expiratory muscles, which are not normally used to any great extent except on effort, act on the rib cage, attempting to lower it. These muscles do not act uniformly over the whole rib area, however,

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but on certain parts only. Consequently, over a prolonged period the rib cage is actually distorted by these expiratory muscles. The diaphragm is stretched by hyperinflation also, thus tethering the lower ribs and giving rise to the typical bowing of the chest. In adults similar changes occur, although as a rule they are less pronounced because the rib cage is firmer.

Treatment

The primary objective of the physician is of course to eliminate or at least control the spasm. However, the search for exciting agents in the patient's environment, the use of spasmolytics and the administration of other measures is beyond the scope of this discussion. In any patient with acute spasmodic asthma, breathing exercises should be instituted and continued until the asthma is completely controlled and respiratory dynamics are normal.⁸ Exercises should be aimed at achieving the maximum excursion of both the rib cage and the diaphragm. Thus mobility and normal dimensions and configuration of the thorax can best be achieved. Since the malleability of the thorax is directly related to age, the younger the patient the more vigorous must be the therapy of the condition.

CHRONIC BRONCHITIS

Typical explosive allergic asthma is the common pattern but not the only one in children. Many children from the beginning do not get complete freedom between attacks, and a whole complex of disorders soon appears, giving a clinical picture differing considerably from that of asthma as previously described. Such a syndrome is very likely to persist through childhood into adult life. It soon becomes clear that the usual approaches to bronchial allergic disease—investigation into possible allergens, the prescription of antispasmodics and so forth—are ineffectual in these cases. The problem becomes the management of a chronic and increasing disability.

Exactly the same clinical picture may appear in adults, although the chronic bronchitis which appears in middle age usually is associated with a history of respiratory disease. At times this chronic bronchitis seems to be the end-product of a long history of spasmodic asthma, with insensible merging of attacks and disappearance of specific causative allergens, until the obstructed expiration is always present and there are periods of acute exacerbation. Sometimes it develops following a lower respiratory tract infection, and sometimes there is a clear relationship to a chronic disease process in the upper respiratory tract. It may, however, be exactly analogous to the childhood disease *chronic asthmatic*

bronchitis, appearing as a chronic deteriorating condition from the beginning, and often attributable to no obvious cause.

Regardless of its origin or the age of the patient, chronic bronchitis is characterized clinically by a more or less permanent wheezing, with the expiratory phase of respiration greatly prolonged. In pathological studies of this condition, the bronchial submucosa has been observed to be infiltrated with eosinophils and other inflammatory cells, and patches of desquamating mucosa may also be observed. There is usually sputum which is thick, tenacious and difficult to expectorate. This sputum, in addition to acting as further obstruction to expiration, tends to plug small bronchi, bringing about atelectasis and leading to subsequent infection.

In chronic bronchitis the alveoli throughout the lung, except in atelectatic lobules, are chronically hyperinflated. Physiologically there is usually an increase in residual air in relation to total lung volume. Any increased respiratory demand, such as occurs on exertion, produces further hyperinflation. The alveoli become permanently overstretched and the lungs progressively more voluminous and less elastic. With the difficulty in expiration, cough becomes increasingly less effective, and sputum is further retained and inspissated. The final picture is one of bronchial narrowing giving rise to emphysema with ventilatory failure, carbon dioxide retention and right-sided heart failure as consequences.

Treatment of Chronic Bronchitis with Obstructive Emphysema

The distress of patients with chronic bronchitis is often appalling, and the prospect of undertaking the responsibility for ameliorating this distress may be discouraging. Yet a therapeutic regimen that is carefully thought out and vigorously pursued can often bring about excellent results. The primary problem is to improve the patency of the airways; upon some success of this objective all else depends. In the second place the mechanical efficiency of the thoracic cage can be increased in almost every case. Lastly, gas exchange in permanently emphysematous lungs can be improved. In planning a therapeutic program it is probably best to consider these objectives in terms of the kinds of therapeutic means at present available. These can be classified as follows:

1. Liquefaction of sputum with iodides and humidifiers.
2. Bronchodilators.
3. Intermittent positive pressure valves.
4. Antibiotics to control infection.
5. Breathing exercises.
6. Various other specialized techniques.
7. Techniques for preventing respiratory acidosis during acute phases.

From the point of view of the patient's psychic well-being as well as best therapeutic results, the more thorough and detailed the approach to the disease, the better.

Liquefaction of Sputum

A good many factors contribute to the significance of sputum in these cases, including inefficient cough and mucus that is tenacious to begin with and is further dried out by mouth breathing. As a consequence, some kind of aid to expectoration is almost always necessary. Of systemic drugs, the iodides offer, in the authors' opinion, the greatest improvement in sputum fluidity.¹⁰ Probably the best form at present available is the calcium salt. However, fairly large dosage is required for effectiveness—at least 1 to 1.5 gm. daily.

The raising of sputum is usually most difficult in the morning, and some kind of humidification at this time may be a desirable part of the regimen. Steam inhalation is old-fashioned but often effective, and it requires no special equipment. Of aerosol sprays, plain water with glycerol added to reduce surface tension is a very suitable agent. Detergents such as Alevaire® have their advocates and may be tried.⁵ The most recent development in this field, aerosolized enzymes such as trypsin and desoxyribonuclease, may be useful in emergencies, but they produce a certain amount of reaction in the bronchial mucous membrane and in studies carried out by the authors, hypersensitivity reactions were frequently noted after a week or two of use.⁴

Bronchodilators

Of the systemic bronchodilators, aminophylline remains useful in some situations, and preparations for oral use that provide slow, prolonged release of the drug are now available. However, epinephrine and related compounds in aerosols seem certainly the most valuable drugs for bronchodilation in most situations.⁹ This is because the problem in chronic bronchitis is partly the inflammatory thickening of the bronchial mucosa, and the vasoconstrictor effect of epinephrine aerosols gives them a valuable dual action that other drugs do not have. Also, the systemic toxic effects are reduced by inhalation administration. Among the preparations most frequently used are racemic epinephrine (Vaponephrin®) and isonorepinephrine (Isuprel®). The authors have used the racemic epinephrine most commonly and have not observed any untoward changes in hypertensive or cardiac patients.

Patients with chronic bronchitis should be encouraged to carry a hand nebulizer with them. It should be used not only to counter incipient dyspnea, indicated by a tight feeling across the chest, but it should be used before any unusual exertion, to fore-

stall an attack. Six or eight deep inspirations of nebulized epinephrine at such times is of great value.

The authors do not routinely use epinephrine and related compounds systemically in these patients. Although such compounds may diminish bronchial muscle tone (as distinguished from spasm), the systemic toxic effects commonly outweigh the therapeutic advantage. In some cases, however, oral administration of ephedrine or Propadrine® (phenylpropanolamine) with a barbiturate cover may be of some help.

Intermittent Positive Pressure Therapy

The intermittent positive pressure valve is one of the most significant advances in recent years in the treatment of chronic bronchitis. Designed to apply a controlled pressure in inspiration to the inspired gas, to cycle at the patient's will, and to apply aerosolized medication, it is a major triumph of medical engineering. The effects are obvious: Bronchi are directly dilated, ventilation increased, cough promoted and bronchial mucous membranes medicated more deeply than is possible with other techniques. Patients with severe respiratory crippling have become moderately active by means of such equipment.⁶

Intermittent positive pressure equipment is also invaluable in dealing with or warding off complications. Not the least of its services is the aid it gives to the cough reflex, since the difficulty that patients with chronic bronchitis ordinarily have in coughing up sputum makes even a common cold a potential threat to life. It can be used at regular intervals through the day to forestall the development of carbon dioxide retention, and in acute exacerbations it may be the only means of saving the patient's life.

Various kinds of valves are available, each with its own particular developments. (The authors' experience has been with the Bennett IPPB unit.) Whatever model is preferred, intermittent positive pressure therapy is an important tool in the management of chronic bronchitis. It is an indispensable item in hospitals, and its simplicity and relative inexpensiveness make it feasible in the home of the patient as well as in a physician's office.

Antibiotics in the Control of Infection

In chronic bronchitis subclinical infection is almost always present to a greater or less extent, since the presence of tenacious mucus in the smaller bronchial radicals is hospitable to organisms. The eosinophilic infiltration of bronchial walls suggests hypersensitivity to the bacterial flora normally present in the patient's respiratory tract. For these reasons, the administration of courses of broad-spectrum antibiotics in full dosage is generally accepted procedure. This is of course almost manda-

tory when clinical infection develops. In addition to this intermittent therapy, many physicians use small maintenance doses of sulfonamides to keep down bacterial proliferation.

Aerosolized antibiotics are less in favor than once they were, now that it has been demonstrated that therapeutic concentrations of these drugs in the sputum may be obtained by the oral or parenteral route.¹ The use of these standard routes of administration reduces the incidence of hypersensitivity, and also cuts down on the undesirable overgrowth of insensitive organisms such as monilia in penicillin therapy. Such overgrowth occurs frequently during or after aerosol therapy. Sensitivity to bacteria is difficult to deal with; desensitization with autogenous vaccines is sometimes worth trying, although it is often disappointing.

No comment about the control of infection is complete without mention again of the importance of expectoration of sputum. Mucus forms an excellent culture medium, and the atelectatic lobule behind a mucous plug is very readily infected.⁷ So the elimination of tenacious sputum is really almost the first problem in treating an infection.

Breathing Exercises

A patient with emphysema is, unless helped, caught in a vicious cycle. He begins with loss of elasticity in the alveoli and permanent ballooning of the lungs. This in turn lessens the negative intrapleural pressure and results in the bronchi, which are dilated by the negative pressure in the pleural space, becoming even narrower, particularly upon expiration.² This is a further impediment to ventilation, resulting in further hyperinflation.

Breathing exercises can alleviate these difficulties. Even the habit of pursing the lips upon expiration, which prevents the collapse of the bronchi by building up a slight back-pressure, is oftentimes helpful. Breathing exercises should be directed to training the patient to exhale slowly, as well as to developing improved diaphragmatic and thoracic cage excursion. The primary object is to improve the efficiency of the expiratory phase. Often there is a surprising degree of subjective improvement after even a brief period, particularly with regard to the expectoration of sputum. Even a patient with an almost rigid chest wall and an immobilized diaphragm may have very gratifying response to simple exercises. Of course the prevention of chest cage deformity in children and adolescents is also a necessary objective when the disease is chronic bronchitis.

Other Therapeutic Measures

Of other measures, the use of antihistaminic agents has proved rather disappointing, except perhaps to control rhinitis that leads to exacerbation of the

bronchitis. Corticoids should be reserved for severe cases that are refractory to other forms of therapy, since they introduce problems of habituation, infection and limited therapeutic time. Certain newer preparations may decrease these hazards but studies are not yet complete. Diamox® (acetazoleamide) has been used to reduce chronic respiratory acidosis.³ In a limited study, the authors found it of some use. The benefit from mechanical aids to diaphragmatic elevation, such as belts or pneumoperitoneum, is controversial; they are probably worth trying in patients who tolerate well the Trendelenberg head-down position.

A good part of the success of any therapeutic approach will depend upon the physician's skill in persuading the patient to adjust his way of life to his disability, and the conscientiousness of the patient in carrying out his necessarily large part in the therapy.

Treatment of Acute Exacerbations

At best an emphysematous patient has difficulty in ventilating adequately. Any further restriction, due to lung infection or any other cause, may result in a rapidly progressing respiratory failure. Such respiratory failure produces two effects—the accumulation of carbon dioxide, and hypoxia. Then efforts to increase ventilation continue until the level of carbon dioxide rises so much as to depress the respiratory center in the medulla. This leaves hypoxia, operating through the chemoreceptors in the great vessels, as the sole stimulus to breathing.

The administration of oxygen by standard methods in this situation will result in the disappearance of cyanosis; but sleepiness, accompanied by increased shallowness of breathing, then develops and coma and death may intervene very quickly. The effect of the oxygen administration is to at least partially restore the oxygen content of the blood, putting the chemoreceptors out of action, without significantly decreasing carbon dioxide. The patient is literally left without any stimulation to respiration.

It is here that intermittent positive pressure breathing is life-saving, since it blows off carbon dioxide besides providing oxygen. Used for periods of up to 20 minutes every hour, it can reverse developing acidosis and maintain a patient until the infection, or whatever else precipitated the attack, is under control. When intermittent positive pressure apparatus is not available, tank respirators, anesthetic machines or the meter mask will be helpful, although by no means so efficient.

DISCUSSION

There is no intention here to minimize the total treatment of the patient with asthma or chronic bronchitis. The problems of allergic reaction, of

psychosomatic factors, of infection or of developmental disease perhaps remain of primary interest to clinicians, since these approaches offer hope of permanent relief, if not cure, of the patient. The object of this communication is to outline the methods necessary for the control of the accompanying emphysema, for maintaining the patient in the best possible state, so far as ventilation is concerned, until the exciting cause of his disorder can be controlled. This limited object is still worth a good deal of thought, for it is very often emphysema, directly or indirectly, that is the cause of major disability or death among patients with these diseases.

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REFERENCES

1. Barach, A. L., Bickerman, H. A., and Beck, G. J.: Antibiotic therapy in infections of the respiratory tract, *Arch. Int. Med.*, 90:808, Dec. 1952.

2. Dayman, H.: Mechanics of airflow in health and in emphysema, *J. Clin. Invest.*, 30:1175, Nov. 1951.

3. Editorial: Diuretics with carbonic anhydrase inhibition, *Lancet*, 268:706, April 2, 1955.

4. Farber, S. M., et al.: To be published.

5. Kracum, V. D., and Collins, V. J.: Aerosol administration of "Alevaire," *N. Y. State J. M.*, 54:2083, July 15, 1954.

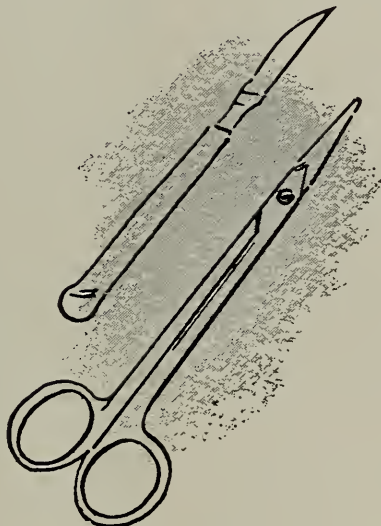
6. Motley, H. L., and Tomashefski, J. F.: Treatment of chronic pulmonary disease with intermittent positive pressure breathing, *A.M.A. Indust. Hyg. and Occup. Med.*, 5:1, Jan. 1952.

7. Olitzki, L.: Mucin as resistance-lowering substance, *Bact. Rev.*, 12:149, June 1948.

8. *Physical Exercises for Asthma*, 6th Ed., Asthma Res. Council, King's College, London, 1946.

9. Segal, M. S., Dulfano, M. J., and Herschfus, J. A.: Intermittent positive pressure breathing of oxygen (IPPB) and bronchodilators in asthma, *Q. Rev. Allergy*, 6:399, Dec. 1952.

10. Tuft, L., and Leuin, N. M.: Studies of the expectorant action of iodides, *Am. J. M. Sc.*, 203:717, May 1942.



Emotional Factors in Physically Handicapped Children

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FROM THE VERY BEGINNINGS of medicine there has been interest in the problems of persons with physical handicaps, congenital or acquired. In more recent years there has been a growing interest in the emotional and psychological aspects of this problem. At the annual meeting of the American Orthopsychiatric Association last year, there was a panel discussion of the problem of rehabilitation of physically disabled persons, and emphasis was put upon the relationship of all the members of the rehabilitation team, such as physician, psychiatrist, psychologist and social worker. At the Fifth International Mental Health Congress held in Toronto, Canada, in 1954, a morning was devoted to a panel discussion of "The Mental Health Needs of Physically Handicapped Children." The present brief report will attempt to bring attention to some of the important emotional factors as they have been observed in our work with physically handicapped children and their parents at the Reiss-Davis Clinic for Child Guidance.

In the past year the author has engaged in psychiatric diagnostic consultations on children with the following physical handicaps: Congenital club feet, congenital heart defects, coarctation of the aorta, congenital weaknesses of eye muscles, causing various forms of strabismus, cystic fibrosis of the pancreas, severe anomalies of the genitourinary tract, leg shortening and deformity as sequelae of poliomyelitis, severe skin conditions such as generalized psoriasis, lupus erythematosus, alopecia and many forms of eczema; undiagnosed atypical convulsions, and questionable cases of mental retardation.

The patients came to the clinic through the usual channels of referral—from pediatricians, from school physicians, nurses and teachers, from psychiatrists and psychologists in private practice, from other clinics and social work and family service agencies. Some of the patients came without referral, having learned of the clinic from friends or neighbors. The presenting complaints in this group of physically handicapped children included the following: (1) learning problems, such as deficiency

• The staff of the Reiss-Davis Clinic for Child Guidance has been concerned with the emotional factors in physically handicapped or chronically ill children. It is felt by the staff that work with these children must include not only the known procedures to improve or correct their physical condition, but also efforts directed toward preventing or removing any evidence of emotional or psychological crippling.

The symbolic or unconscious meaning of the disability is of great importance in this work. Attitudes of the parents may seriously interfere with the handicapped child's ability to develop his maximum level of functioning and adjustment. Individual and group psychotherapy was found of value in helping these parents.

in reading or arithmetic although having average or above average intellectual abilities; (2) behavior disorders such as antisocial acts in the classroom or neighborhood, some truancy and some hyperaggressive acts; (3) phobias, including fears of the night, darkness, or animals; (4) severe separation anxieties involving inability to be separated from home or, more specifically, from mother; (5) enuresis, manifested by occasional or nightly bedwetting; (6) passive, withdrawn states with progressive isolation from peers and family; (7) immaturity reactions, characterized by behavior, learning and play of a much younger age level.

As can be seen on the surface these complaints fall into the same general pattern of those of non-physically handicapped children who are taken to a child guidance clinic. It remains for the diagnostic interviews, psychological tests and, later, actual psychotherapy to reveal in what way the physical handicap has played a role in the child's emotional development and subsequently in the symptom formation. Of interest also is the question of the mother-child relationship and the ways the physical handicap has influenced this relationship. It was into this latter area of mother-child relationship that some of the psychotherapeutic energies were directed, in addition to starting individual psychotherapy for those physically handicapped children for whom it was considered necessary. Some of the pertinent emotional attitudes that were found to be of importance in both of these areas—that is, therapy

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with the mothers and therapy with the children—are here presented.

Betty, 11 years of age, was referred because of increasing difficulty in relating to her schoolmates, a growing complaint of “being different and unable to keep up with the other girls” and a general air of unhappiness. In the history it was noted that Betty had had poliomyelitis at age 6, with the sequela of large muscle group atrophy of one leg, causing shortening and a noticeable limp. Also in the history was a statement that Betty was an only child and that she lived alone with her mother who was divorced from Betty’s father. The mother was employed and supported Betty and herself from her wages. However, her employment made it difficult for her to enter Betty’s life in school activities or extracurricular events.

Betty’s mother had had a period of individual psychotherapy in another agency several years before.

It was decided to start Betty in twice-weekly sessions of psychotherapy. At first all of Betty’s verbalizations pointed to the atrophy of her leg, which in her mind was the cause of all her difficulties. She maintained that her limp kept her from playing with the other girls. “They can run faster, walk better and so they get picked on the teams and I am left out all the time.” From this there then emerged a series of questions and inquiries devoted to answering, “Why did it have to happen to me?” As the therapist allowed the material to develop further he noted that Betty was becoming involved in revealing her own fantasied reasons for the poliomyelitis and later physical handicap. It became clear that this was understood by Betty as a punishment inflicted on her.

Slowly, in response to questions and comments, Betty revealed that she believed children, especially girls, were punished for daring to masturbate. As this was discussed she felt free enough to begin to reveal some of the content of her masturbation fantasies. Here for the first time she allowed some of her feelings of dissatisfaction with her own genitals to become known. Soon it became clear that much of the complaint of “being different from the others” had its root in her feelings of girls being different from boys, and therefore less capable. The atrophy of the limb and resultant limp were thus seen to have provided her with a good situation onto which she could project these underlying feelings associated with the impairment of ability that she suffered. Shortly, however, it could be demonstrated to her that in spite of her disability she was being accepted by her schoolmates. She was able to compete with them in many ways even though not able to run with the fastest of them. In this way she could see that her own feelings had interfered with the further development of her social relationships.

As a general statement it can be said that there are specific frustrations related to different age groups. Separation from the family and restriction

of mobility have great impact on preadolescent children. An adolescent reacts much more to interference with the fulfillment of his interests and the realization of his talents. In Betty’s case we have an example of the impact that puberty can have, with its increasing concern in the body, its anatomical changes and its physiological functions. Under the impact of the physiological changes of normal puberty, Betty was again subjected to the psychological conflicts she had in regard to her body. By way of summary, the therapist’s understanding of Betty’s situation was as follows: Feelings of being different, of inability to compete or keep up with her peers, and general unhappiness with her state were on the surface presented as due to the physical handicap she had. In therapy she revealed that the handicap served her by providing a site onto which she could project deeper underlying emotional conflicts regarding her body and its role. Time is too short to demonstrate other feelings that were also projected onto her handicap. However, once she was freed of these deeper feelings she could make a much better adjustment to the reality of her handicap and accept its limitations on her performances as well as allow herself to develop whatever abilities she could.

Jack, aged 6, was brought to the clinic because he was unable to adjust to any classroom procedure in public schools. He was found untestable by the usual psychological tests administered to determine intelligence and personality structure. His speech was at times incoherent, irrelevant and filled with repetitive phrases or words. He made little or no contact with adults or children, seemed withdrawn and preoccupied with inner fantasies. Quite often he muttered, “Me dead, me dead!” The general impression was one of severe retardation with question of mental deficiency.

As work with him in individual psychotherapy three times a week began, the therapist heard more and more of the theme, “Me dead—you dead—me dead!” This alternated with a playing out in his therapy of violent explosions from without and some explosive reactions that seemed to originate from within his body. Gradually the inner explosive reactions were followed by scenes of death or destruction. However, Jack had formed an attachment to the therapist and was eager to be with her for his treatment sessions.

Jack’s mother informed physicians at the clinic that he was scheduled soon to have routine immunization injections, whereupon the suggestion was made that a complete physical examination be done at the same time. When the examination was carried out, severe coarctation of the aorta was noted, with no pulse in one arm and the temperature of the lower limbs 5° F. below normal. An operation to correct the coarctation was scheduled. In the meantime, psychotherapy was continued by

way of preparing the patient for the operation and sustaining him in convalescence. It was learned that owing to his very retarded appearance and behavior, all the possible dire consequences were discussed in his presence in the hospital where he was examined. The period of psychotherapy immediately following this cardiovascular consultation was again filled with the theme of destruction and death. As to the role the disturbed circulation played in the psychological development of the patient, it is conceivable that it not only brought about the changes in body temperature and pulse, but also interfered with the development of a normal body image. It will be of great interest to observe this boy after operation to see what effect improved circulation will have on his general psychological development.

Let us turn now to the work with the parents—more specifically, the mothers—of many of these children with physical defects or handicaps. A few of the mothers are receiving individual psychotherapy, but a larger number of them are in group psychotherapy. Like other investigators who work in this field, the author found the mothers quite often responding with deep feelings of guilt, blame and self-accusation when confronted with a congenital defect, birth injury or chronic illness in their children. These mothers, just as Betty did, posed the question, "Why did it happen to me?" And each in her own way out of the experience of her past, her own cultural influences and attitudes and her own childhood fantasies, supplied herself with an answer to that question.

An interesting reaction on the part of some of the mothers in psychotherapy was an attitude of denial of the existence of the handicap as a physical entity and an insistence that the problem was primarily psychological in nature. The kind of turning away from facing the reality that confronts them is well known in the case of parents who go from one physician to another, to various clinics, institutions, cultists and quacks, constantly seeking support of their wish to evade the situation. Perhaps the wish to consider the handicap or disability as entirely psychogenic was somehow determined by the fact that they were in a psychologically oriented setting at the moment and were reaching out, there, to get a psychological basis for the situation that confronted them. A psychological basis for the symptom would mean a chance for reversing the situation; an organic basis would mean in most instances a hopeless, irreversible process.

Oftentimes the wish to avoid facing the defect in the child stems from the parents' feeling that a defective child reveals some shameful weakness of their own. Many of the mothers spoke of the embarrassed feelings they had whenever they had

to be in public with their child, especially if they were to be in a new and strange setting. It was clear that they were concerned with the appearance or behavior of the child being reflected onto them as parents. One mother whose child had a disfiguring skin condition said, "I can't imagine how anyone, especially children, could ignore that skin condition." Because she could not ignore it, or because she had so much feeling invested in it, she was unable to accept that others might regard it differently. Often this attitude was encountered in certain mothers: "My child is so different from other children his age, because of his handicap, that he can never make any kind of adjustment in our society." This overdetermined reaction to the real situation that confronted her naturally interfered seriously with her child's ability to attain whatever potential he had. The contributing elements to this overdetermined reaction were to be found in the mother's own emotional and psychological development, especially in that area that dealt with her earlier awareness and reaction to differences in body, in sexual anatomy, in order of birth within the family, in preferred roles in relationship to one or the other parent. One mother said: "Isn't there always a difference in the way brothers and sisters are treated? Aren't brothers always treated better?"

Quite often a mother was able to recognize that an attitude she now had toward her child with a handicap was a repetition of an attitude she had encountered as a child. One mother who became aware of the fact that she took care of her children only because she considered it her "duty" to do so, suddenly recognized that this was the feeling she had had as a little girl—that her own mother took care of her, not out of love, but only out of a sense of duty. When these mothers were asked how they felt about having the additional care of a child with a handicap, their usual reply was that feelings did not enter into it at all; this was just a responsibility forced upon them and it was their duty to care for the child.

The hostile, punitive feelings of some mothers toward a handicapped child is very lightly disguised. This can be seen at times in the extreme rigidity with which they hold their child to certain prescribed routines, a restricting diet or a painful schedule of medication. Others are able to conceal it in an attitude of leaning over backward to a point of sacrificing their own lives completely, responding to the slightest need or demand of their handicapped child, often to the detriment of other members of the family. Quite often a very concerned, overprotective attitude serves to conceal ex-

tremely hostile and aggressive feelings. The anxiety and overprotectiveness of some of these parents keep the child from ever gaining an awareness of his own capabilities and limits and the child then develops with a shortage of social experiences and must of necessity remain in close attachment to his mother.

The presence of a chronic disease or a congenital defect in a child certainly makes it more difficult for any parent to carry out his parental role. The dependence of all infants and young children is of necessity increased in the case of a physically handicapped infant and young child. This increased dependence quite often provokes in the parents severe feelings of hostility with wishes to be rid of this added burden. This is immediately followed by intense feelings of guilt, and thus a vicious cycle is set in motion. It can readily be seen how this merges into the whole topic of the normal, acute physical illnesses and various needs for surgical operations, such as tonsillectomy. Here, too, the effect that the illness or the operation has on the child and on the parents has been studied and reported in terms of the psychological factors involved.

In the setting of work with these mothers at the clinic, such things as the following are often heard: "Many times I wished that in the next surgical procedure or bout of infectious illness, my child

would die." Or, "I didn't think I could take any more of it and found myself wishing he had died or had not been born." It is the feeling of all who do psychotherapy with these mothers that freeing them of guilt for having such feelings and wishes makes easier the task of relating to their child. Also of importance for those who are involved in psychotherapy with physically handicapped children is the matter of countertransference. Too great an identification or too great a sympathizing or empathizing with these children or their parents seriously interferes with the needed objectivity that is so valuable in helping these children to reach their potential level of development.

In conclusion, it can be said that (1) The work with the physically handicapped or chronically ill child must include efforts directed toward preventing or removing any evidence of emotional or psychological crippling. (2) In addition to the real nature of the disability or handicap, its symbolic or unconscious meaning to the child and parent is of great importance. (3) Attitudes and feelings of parents toward these disabilities can seriously interfere with the full development of the potential in these children. (4) Treatment of these children in child guidance clinics is an extension of the fundamental approach in medicine—that is, treat the person and not the disease.

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The Diminutive Kidney

Congenital Hypoplasia and Atrophic Pyelonephritis

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THE DIMINUTIVE KIDNEY—that is, one weighing less than 100 gm.—occurs frequently enough to present a problem of diagnosis and treatment both to general practitioners and urologists. There are several causes: Hypoplasia, in which the kidney is miniature or rudimentary at birth due to arrested development; aplasia, in which there is no true kidney, only remnants of parenchyma and vascular pedicle; pyelonephritic atrophy resulting from infection and obstruction in which atrophy due to nephrofibrosis usually takes place in a kidney of normal size at birth, although it may occur also in a hypoplastic kidney.

Recognition of the condition is important, for it may be the cause of intractable lumbar and abdominal pain, of obscure symptoms that seem referable to the gastrointestinal tract, and of chronic urinary tract infection, sometimes accompanied by chills and fever. It may be the cause of hypertension, particularly in cases in which there is sclerosis of the blood vessels.

The present report is based on review of 53 cases of diminutive kidney treated at St. Mary's Hospital from 1945 to 1955. (Nine cases of solitary congenital kidney in which there was aplasia or agenesis of other kidney were not included in the study.)

Hypoplasia of the Kidney

The hypoplastic kidney is diminutive and rudimentary, consisting of a relatively small amount of parenchyma, pelvis and ureter. As a rule only one kidney is hypoplastic, and since compensatory hypertrophy is present in the other, nephrectomy can be done if necessary for the relief of pain, of chronic urinary infection and, in some cases, hypertension.

It secretes a varying quantity of urine which is collected by normal or bizarre calyces and empties into a hydronephrotic or small bulbous pelvis. Although the urine secreted contains normal constituents, the function of the hypoplastic kidney alone is inadequate to eliminate the waste products of the body should the other kidney be removed, and the patient would die of uremia. In 1913, Geraghty and

• Diminutive kidney, hypoplasia or atrophic pyelonephritis, may be the cause of hypertension, lumbar or abdominal pain, obscure gastrointestinal symptoms or chronic urinary infection accompanied by chills and fever. A hypoplastic kidney is prone to infection and stone formation.

Diagnosis includes meticulous x-ray examination and renal function studies employing the more accurate quantitative phenolsulfonphthalein test of each kidney.

Nephrectomy is the treatment for unilateral disease causing symptoms; localized atrophic pyelonephritis is amenable to partial resection.

Since urinary stasis invites infection, obstructing ureteral strictures should be dilated. Pyelectasis, secondary to ptosis, and ureteropelvic obstruction should be corrected by nephropexy or plastic repair. These conservative measures may prevent renal destruction.

Sixteen patients were subjected to nephrectomy: Six because of persistent pain and chronic infection and ten because of hypertension. The six with pain and chronic urinary infection were relieved. In six of the ten with hypertension, the disease recurred within six months to seven years.

Plaggemeyer⁷ emphasized this point and advised that separate phenolsulfonphthalein function studies be carried out on each kidney. Although the appearance time of the dye may be normal, the hypoplastic kidney usually eliminates one-quarter to one-fifth the amount of that secreted by its hypertrophied mate.

A hypoplastic kidney is prone to infection and stone formation; often scarring with fibrosis, cystic degeneration and round cell infiltration are present (see Figures 1, 2 and 3). Other congenital anomalies of the genitourinary tract frequently are associated with renal hypoplasia. (In two cases in the present series there was reduplication of the opposite kidney.) Hypoplasia is to be differentiated from pyelonephritic atrophy in which the kidney is reduced in size by infection.

Many theories concerning arrested development of the kidney in the embryo have been advanced. The kidney develops from the Wolffian body through the states of pronephros, mesonephros and metanephros. An insufficient blood supply occurring at any of those stages could cause arrest in development (Nicholson,¹³ and MacKenzie and Hawthorne¹¹).

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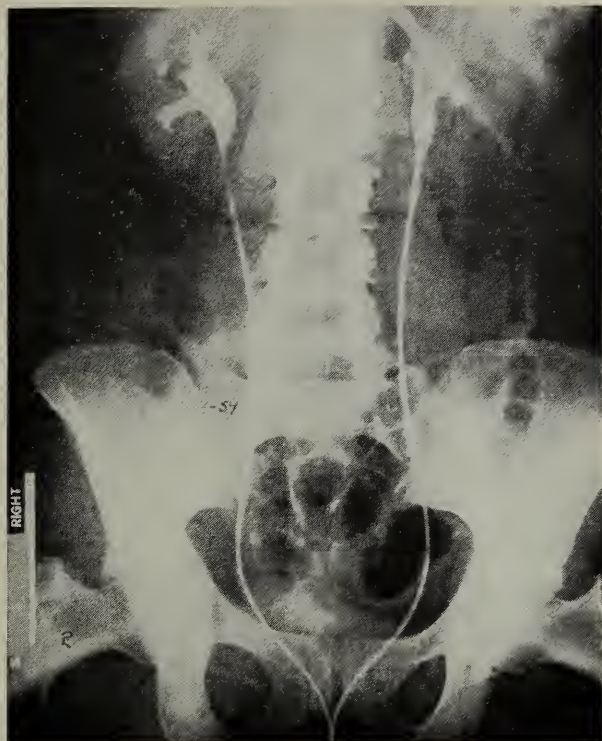


Figure 1.—Retrograde pyelogram showing left hypoplastic kidney, small bulbous pelvis and absence of lower major calyx.

Aplasia of the Kidney

In aplasia there is a vestige of parenchymal renal tissue which has never developed any functioning power. The ureter and corresponding half of the trigone are usually absent. Renal agenesis consists of complete absence of the kidney on one or both sides due to entire lack of development of metanephros. In 1933, Gutierrez⁸ classified clinical pathologic differentiation of hypoplastic kidney, renal aplasia and congenital absence of one kidney.

Atrophic Pyelonephritis

The diminutive kidney resulting from atrophic pyelonephritis may be bilateral or unilateral. Sometimes diminution is confined to one portion of a kidney. When unilateral, it may be relieved by nephrectomy; when limited to a portion of the kidney it is amenable to partial resection; when bilateral, it results in uremia and death. It can take place in a congenitally hypoplastic kidney but ordinarily occurs in one which was of normal size at birth. Atrophic pyelonephritis is the result of chronic infection, which may ascend from the bladder or be hematogenous in origin. At times it follows surgical intervention on the kidney, such as nephrolithotomy or plastic repair. (Hydronephrotic atrophy and that due to tuberculosis will not be discussed.)

Arteriosclerotic vascular changes are a great fac-

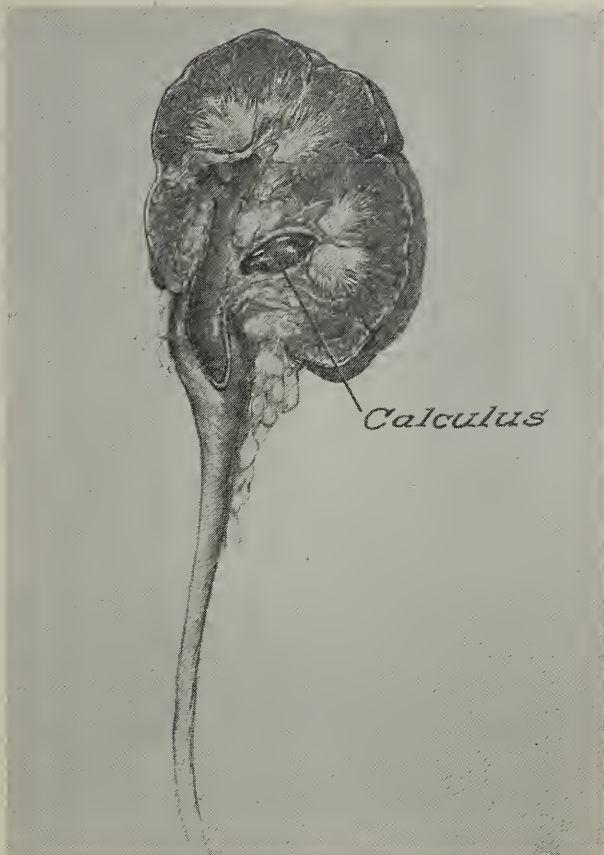


Figure 2.—Saggital section. Diminutive hypoplastic kidney, weighing 22 grams, with stone in middle calyx. Cortical and medullary markings are well defined.

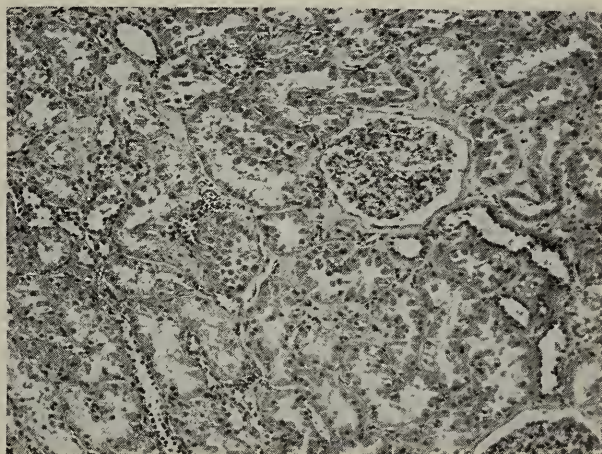


Figure 3.—Photomicrograph of hypoplastic kidney, presenting normal architecture with dilation of tubules and irregular deposits of small calculi. ($\times 100$)

tor in producing nephrosclerosis, many resulting from old infarcts. Usually, there is reduction in the size of the kidney; however, the organ may undergo nephrofibrosis without appreciable contraction. The width of the cortex is reduced and the cortical and medullary markings are obliterated. The pyramids



Figure 4.—Retrograde pyelogram showing left atrophic pyelonephritis. Note small size of parenchyma, enlarged pelvis with dilated minor calyces coming directly off the pelvis.

are white and show less defined radial striation; the pelvis may retain its normal size but usually is enlarged (Figures 4 and 5). The true capsule is white, opaque, thickened and adherent. Often there is infection and stricture formation in the ureter. Upon histologic study, round cell infiltration, hyalinization of the glomeruli, disappearance of the tubules, vascular sclerosis and fibrosis may be observed (Figure 6). Cumming and Schroeder⁴ coined the word "nephrofibrosis" to describe this condition.

Bilateral pyelonephritic atrophy may resemble glomerulonephritis with contraction of the kidney, and frequently is associated with hypertensive cardiovascular disease. It may be symptomless until uremia occurs. In eight instances of hypertensive cardiovascular disease in which the patient was moribund at the time of entering the hospital, not until autopsy was nephrosclerosis diagnosed.

Unilateral atrophic pyelonephritis usually results from ascending infection from the bladder. Stasis, due to obstruction and extensive sclerosing perinephritis, is an additional etiologic factor. The condition is associated with and may be the cause of hypertension, particularly when there is sclerosis or aneurysm of the renal vessels. It is fairly often associated with calculous disease and fibrolipomatosis in which the indurated perirenal fat surrounding the pedicle extends inward and compresses the paren-

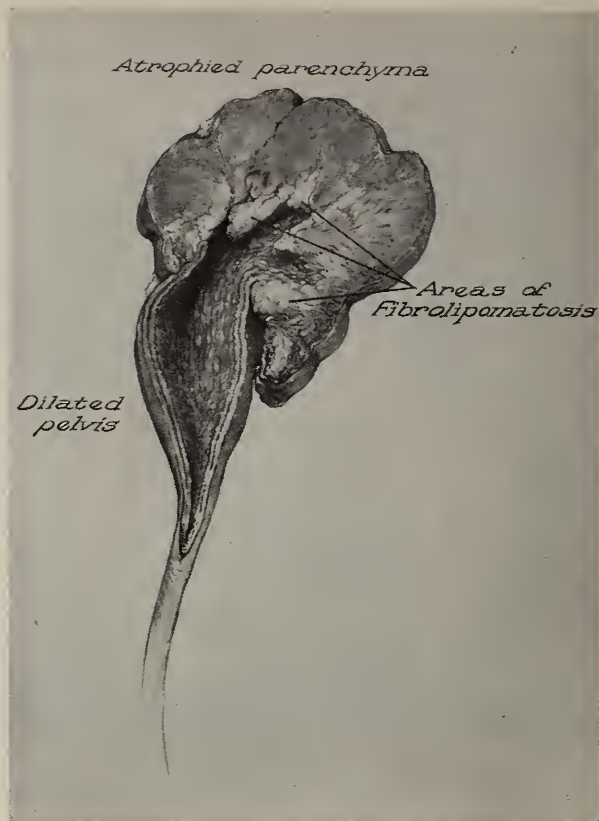


Figure 5.—Sagittal section. Atrophic pyelonephritis. Note obliteration of cortical and medullary markings, less defined radial striation and fibrolipomatosis extending inward and compressing the parenchyma.

chyma. As the kidney atrophies, its mate hypertrophies. Hence nephrectomy is feasible. In a previous report of 113 nephrectomies,¹² nine (8.3 per cent) were for pyelonephritic atrophy, which in five cases was associated with calculi.

In one case, that of a woman 54 years of age with pyelonephritic atrophy owing to chronic infection of the left kidney, it was felt that urinary stasis due to ureteral stricture was a causative factor. Repeated ureteral dilatations, at intervals of six to twelve months aided in combating infection and probably kept the kidney from being entirely destroyed by nephrofibrosis.

Localized Atrophic Pyelonephritis

When diminution in size is limited to one portion of a kidney, infectious changes of the obliterative type usually are confined to one or two calyces. Destruction of a portion of the kidney is characterized by sclerotic narrowing of the infundibulum, which results in dilatation of the calyx (Hyams and Kenyon¹⁰). The infundibulum may be entirely closed, walling off a chronically infected calyx. This condition has been called calyceal diverticulum or calyceal hydronephrosis. Prather¹⁴ carried out plas-

tic operation for opening the infundibulum. The author believes it is best to perform partial nephrectomy in most instances of localized obliterating pyelonephritis, particularly when there is sclerosis of the nutrient blood vessels.

DIAGNOSIS

In making differential diagnosis of kidney disease, x-ray studies are essential, and a good plain roentgenogram will demonstrate diminutive kidney. The renal shadow is best visualized by carrying out preliminary preparation which consists of giving 45 cc. of castor oil 18 hours before and an enema one hour before the film is taken. This will usually eliminate obscuring contents and/or gas in the gastrointestinal tract.

Excretory urography intensifies the nephrogram. It reveals renal changes of the hypoplastic type, in which the pelvis may be enlarged or bulbous, with minor calyces usually coming directly off the pelvis. It will also distinguish the shrunken kidney due to atrophic pyelonephritis, which is characterized by enlarged pelvis, narrowing and sometimes obliteration of the infundibulum, with distortion and dilatation of the calyces. Retrograde pyelography gives more precise films and is mandatory when kidney function has been decreased. Furthermore, cystoscopy and ureteral catheterization are necessary for accurate quantitative phenolsulfonphthalein test of each kidney. If the foregoing technique is followed, seldom is presacral pneumography necessary to demonstrate the diminutive kidney.

Of interest in this regard is a case reported by Espinosa and Mahoney in which pneumographic observations were interpreted as nonfunctioning hydronephrosis secondary to ureteral obstruction. At operation the condition was found to be renal hypoplasia. The shadow that had been interpreted as enlarged kidney actually was due to fibrolipomatosis.

As Burkland pointed out, it is difficult to differentiate urographically between congenital hypoplastic kidney and atrophic kidney resulting from acquired infection.

In selected cases, particularly those in which hypertension is present, arteriography is indicated to determine the condition of the blood vessels.

TREATMENT

Nephrectomy of the unilateral diminutive kidney is indicated for the relief of hypertension, persistent lumbar and abdominal pain and intractable urinary infection. In 1922, Braasch² advocated nephrectomy for atrophic pyelonephritis. In 1952, Cibert and Collet³ reported on 31 cases in which nephrectomy was done for aplasia and atrophy. Twenty-six of the

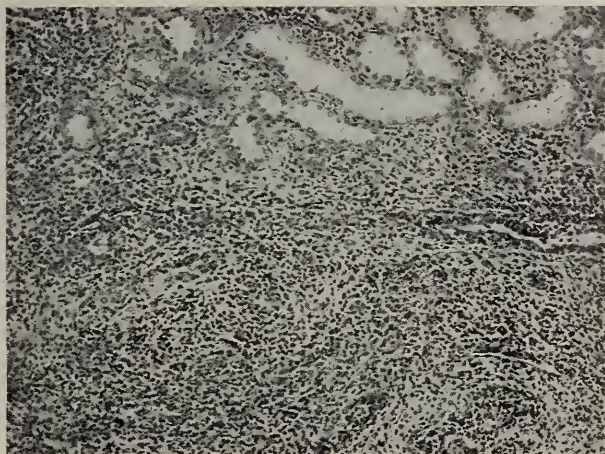


Figure 6.—Photomicrograph showing atrophic pyelonephritis. Note areas of round cell infiltration, hyalinization of the glomeruli, destruction of tubules, vascular sclerosis and fibrosis. (×100)

patients were relieved of pain, chronic urinary infection, albuminuria and hypertension.

Of 20 patients in this series with unilateral diminutive kidney, 16 had nephrectomy. Two with hypoplasia and one with unilateral atrophic pyelonephritis were not operated on because they had no symptoms necessitating surgical treatment; and one did not have operation because the risk was considered too great.

Partial nephrectomy may be carried out in certain patients with localized atrophic pyelonephritis. The upper half of a bifid kidney, which often becomes atrophic is particularly amenable to partial resection. In one case in the present series, half of a solitary kidney (the other having been removed previously) was excised because of calculous pyelonephritis and the result was satisfactory.

Relief of stasis aids in eliminating infection of the kidney and may stave off complete destruction. In cases of pyelectasis secondary to ptosis, the kidney affected should be suspended and obstruction of the ureteropelvic junction corrected by plastic repair. Obstructing ureteral stones should be removed and ureteral stricture, often overlooked, periodically dilated. In some cases reduction of hypertension was observed following ureteral dilatation, plastic repair of the kidney pelvis, detorsion and nephropexy.

Atrophic pyelonephritis may follow conservative kidney operations. Meticulous technique, adequate postoperative drainage and correction of accompanying stasis are important to prevention of that development.

ANALYSIS OF CASES

Of the 53 cases of diminutive kidney here reviewed (21 in males and 32 in females) three were

diagnosed in the second decade of life, four in the third, nine in the fourth, seventeen in the fifth, nine in the sixth, nine in the seventh and two in the eighth.

There were ten cases of hypoplasia, ten of unilateral and 33 of bilateral atrophic pyelonephritis (nephrofibrosis). Nephrectomy was done in eight of the patients with renal hypoplasia and in eight with unilateral pyelonephritic atrophy. In ten of the 20 cases the operation was done because of hypertension and in six for the relief of intractable pain or chronic urinary infection. Six of the patients operated upon and four of those who were not, did not have hypertension.

Hypertension recurred in six patients—within one year in two of them, within two years in three others, and in one within seven years. All were over 45 years of age. In two cases in which there was recurrence of hypertension, it was not so severe as before: Systolic blood pressure below 172 mm. of mercury as against 210 mm. in one case and 250 mm. in the other before operation. In the four cases in which there was no return of hypertension so far as is known, the periods of observation after operation were six months, one year, three years, and seven years. Pathologic examination of the extirpated kidneys showed sclerosis of the renal vessels in the majority of cases of hypertension. On the other hand, three patients, aged 33, 45 and 51 years, with advanced sclerosis of the renal artery and its main branches did not have abnormal blood pressure—respectively 120/80 mm., 130/90 mm. and 140/90 mm. of mercury.

Two years should elapse from the time of nephrectomy before a conclusion can be reached as to whether the diminutive kidney, *per se*, was the cause of hypertension. Recurrence is less likely in patients under 45 years of age. In studying pathologic specimens it is difficult to conclude whether pyelonephritic atrophy took place in a congenital hypoplastic kidney or in one of normal size at birth. For this reason, Emmett and co-workers⁵ advised the use of the blanket term "atrophic kidney." The author prefers the more precise term "diminutive kidney."

Thirty-three cases of bilateral atrophic pyelonephritis, in which there were varying degrees of nephrofibrosis, sclerosis of the blood vessels and infarct, were reviewed. In many of them the renal symptoms were overshadowed by those of hypertensive cardiovascular disease. Sixteen patients died of nephrofibrosis—12 of them in uremia. Four others died, one of perforated gastric ulcer, one of bronchial pneumonia, one of cerebral accident and one 21 days after transurethral resection of the prostate. Autopsy was done in seven of these cases, and the characteristic inflammatory interstitial changes of nephrofibrosis—that is, round cell infiltration, infarcts, and sclerosis of blood vessels, glomeruli and tubules were observed.

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REFERENCES

1. Burkland, C. E.: Clinical considerations in aplasia, hypoplasia and atrophy of the kidney, *J. Urol.*, 71:1, 1954.
2. Braasch, W. F.: Atrophic pyelonephritis, *J. Urol.*, 7:247, 1922.
3. Cibert, J. et Collenet, J.: 31 néphrectomies pour aplasie ou atrophie, *J.d'Urol.*, 58:12, 807, 1952.
4. Cumming, R. E., and Schroeder, C. F.: Renal atrophy, *J. Urol.*, 37:407, 1937.
5. Emmett, J. L., Alvarez-Ierena, J. J., and McDonald, J. R.: Atrophic pyelonephritis versus congenital renal hypoplasia, *J.A.M.A.*, 148:17, 1470, 1952.
6. Espinosa, R. R., and Mahoney, M. T.: Unusual roentgenographic data in unilateral renal aplasia, *J.A.M.A.*, 155:14, 1232, 1954.
7. Geraghty, J. T., and Plaggemeyer, H. W.: The practical importance of infantile kidney in renal diagnosis, *J.A.M.A.*, 61:2224, 1913.
8. Gutierrez, R.: Surgical aspects of renal agenesis, *Arch. Surg.*, 27:686, 1933.
9. Herbst, R. H., and Apfelbach, C. W.: Hypoplasia of the kidney, *S. G. and O.*, 61:306, 1935.
10. Hyams, J. A., and Kenyon, H. R.: Localized obliterating pyelonephritis, *J. Urol.*, 46:3, 380, 1941.
11. Mackenzie, D. W., and Hawthorne, A. B.: Unilateral renal aplasia, *S. G. and O.*, 46:42, 1928.
12. Mathé, C. P., and de Castillo, M. J.: Kidney surgery, *Am. J. Surg.*, 64:2, 235, 1944.
13. Nicholson, G. W.: The kidneys and their development, *Guy's Hosp. Rep.*, 77:362, 1927.
14. Prather, G. C.: Calyceal diverticulum, *J. Urol.*, 45:55, 1941.

CASE REPORTS

Systemic Moniliasis

Report of a Case

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THE INTRODUCTION of chemotherapeutic agents and antibiotics has proved to be a mixed blessing. The miraculous cures of formerly fatal diseases as well as of the less spectacular nonfatal but incapacitating diseases, has been accompanied by a significant number of complications, such as all types of allergic reactions, kidney damage, agranulocytosis, the emergence of resistant organisms and—as in the case here reported—the overgrowth of nonsusceptible organisms.

REPORT OF A CASE

A two-year-old white boy was admitted to the Communicable Disease Unit of the Los Angeles County General Hospital on March 10, 1954, with complaint of stiffness of the neck of one day's duration. Headache, lethargy and a fever of 103° F. had been noted on the night prior to admission. The patient had had no other recent illness.

At the time of admittance the temperature was 103° F., the pulse rate 160 and respirations 40 per minute. The patient was well-developed and well-nourished. He was lethargic and irritable. The left tympanic membrane was dull, the posterior pharynx reddened, the neck severely stiff, and reflexes hypoaactive but equal.

The cerebrospinal fluid was cloudy and the leukocyte content was 3,400 per cu. mm. (differential not noted). The pressure of spinal fluid was not determined. Gram-positive rods were observed in a specimen of the fluid sediment, and *Hemophilus influenza*, type B, grew on a culture of the material. The hemoglobin content of the blood was 11 gm. per 100 cc. and the leukocyte content was 3,300 per cu. mm. with 72 per cent neutrophils.

Penicillin was given intravenously (averaging 30 million units per day for four days), chloramphenicol (1.5 gm. per day after 3 gm. on the first day) and sulfisomidine (Elkosin®) intravenously and subcutaneously 6 to 9 gm. per day. General supportive measures were carried out—administration of

adrenal cortical extract, sedation and gastric suction. On the fifth day of this therapy the spinal fluid cell content was 40 per cu. mm. with 1 neutrophil. Penicillin and chloramphenicol then were discontinued. On the ninth day, phlebitis and an infection at the site of the intravenous infusions were noted. The leukocyte content was 28,500 per cu. mm. of blood, with 78 per cent neutrophils. The general clinical condition of the patient had remained poor and the possibility of loculation of the meningeal infection was considered. On the twelfth hospital day the cerebrospinal fluid contained 561 cells per cu. mm., 20 per cent neutrophils. This and a continuing elevation of the leukocyte content in the blood seemed to indicate that the infection was not under control, and streptomycin (1 gm. per day) and Alexander's serum* (50 mg. per day for two days) were given. In addition, streptokinase-streptodornase (Veridase®) was instilled intraspinally, 2,500 units three times daily, in an attempt to break up the suspected loculations. On the 13th day a combination of sulfadiazine and sulfamerazine (a total of 6 gm. per day) replaced sulfisomidine because the supply of that drug had been exhausted. On the 15th day chloramphenicol was again started, but it was again discontinued after two days. At about this time, a culture of blood and a culture of material taken from the infected area about the site of venipuncture grew *Candida albicans*. On the 16th day administration of a saturate solution of potassium iodide was started, beginning with five drops three times daily and increasing so that a maximum of 60 drops three times daily was reached on the 27th day and was maintained until the 42nd day. On the 16th day it was also noted that the cerebrospinal fluid showed 548 cells per cu. mm., 2 of them neutrophils. Also there was a decrease in the sugar content of the fluid. Because of the decreased sugar, it was felt that the phenomena were more than just a reaction to Veridase, and were caused by a growth of organisms. For this reason, sulfadiazine and sulfamerazine were continued. The cell content of the cerebrospinal fluid then decreased and the sugar content returned to normal. The number of leukocytes in the blood also decreased. The sulfa drugs were discontinued on the 22nd day. On the 24th day the patient was found to have several abscesses on the lateral aspect of both thighs. These were surgically opened and cleansed,

From the Services of Dr. A. G. Bower, Chief Physician, Communicable Disease Unit, Los Angeles County General Hospital.

Submitted September 26, 1955.

*Hyper-immune sera for *Hemophilus influenzae*, type B.

and drains were inserted. Cultures of material from the abscesses grew *Candida albicans* on two occasions. No organisms grew on further cultures of the blood, but monilia grew on a culture of urine on the 22nd day. Surprisingly, no monilia were recovered from the feces. After the 27th day all cultures were sterile. The patient continued to have a low grade fever intermittently until the 45th day, and thereafter seemed entirely well. In fact, he began to look and act better about a week after the abscesses were drained. The patient continued to do well and was discharged on the 56th hospital day with no demonstrable residual effect.

An x-ray film taken on the 23rd day of illness showed a "haze over the left upper lung field." An electroencephalogram was normal. After the growth of *Hemophilus influenza* on the first culture of cerebrospinal fluid, all subsequent ones were sterile.

When observed one month after discharge, it was noted that, except for "bronchitis," which had been treated by another physician, the patient was doing very well. His mother had noted a questionable wide gait, but this was apparently not striking.

DISCUSSION

A rising incidence of mycotic infections, both primary and secondary, has been noted. The monilias have been the most common offender and their cultural characteristics have been typical, but growth occurs in a much shorter time than usual. They have been found in increasing numbers in their usual habitat (mouth, throat, sputum, and vagina) as well as in the urinary tract. There appears to be a consistent concomitant in most cases: Usually there was notation that more than one antibiotic had been administered. This may be a contributing factor or it may be merely coincidental with multiple antibiotic treatment, which is the rule in present day therapy. The majority of the disseminated monilia infections have been fatal and monilia lesions have been observed in most of the organs at autopsy.

Sharp,⁶ in England, observed in study of a group of 174 pneumonia patients that the proportion of cases in which cultures grew monilia was higher when terramycin was the therapeutic agent than when sulfadiazine was used. Cultures of material from the throat, which were positive for monilia in 16 per cent of cases upon admission were positive in 42 per cent after five days of treatment. The corresponding data for cultures of sputum were 32 per cent and 61 per cent, for rectal cultures were 0 and 59 per cent. None of the patients had symptoms and the incidence of positive cultures decreased when the antibiotic was stopped.

A patient reported upon by Browne² was under treatment with succinylsulfathiazole, diodoquin, emetine, and penicillin for amebiasis and liver abscess. He was treated with potassium iodide and gentian violet and recovered. Brown and co-workers¹ reported five fatal cases of fungus infection, in all of which the patient received multiple antibiotics for

some type of primary infectious process. In all of the cases except one, cultures of the blood were positive for monilia. The monilia infection was accompanied by disseminated aspergillosis and agranulocytosis after penicillin and chloramphenicol therapy. Huppert³ reviewed the various theories that have been postulated for the increased incidence of candidosis as a complication of antibiotic treatment. One theory is that of "suppression with substitution"—that is, that administration of antibiotics upsets the equilibrium of normal flora, permitting resistant species to increase. Another is that the normal flora supply certain nutritional requirements to the host and that disturbance of the normal flora results in a nutritional effect upon the integrity of the mucous membrane, making it penetrable by microorganisms not usually able to pass through it. A third theory is that some antibiotics directly stimulate the growth and increase the virulence of *Candida albicans*. Other studies have shown that Aureomycin stimulated the *in vitro* growth of *Candida albicans* significantly, while penicillin, chloramphenicol, streptomycin, and terramycin did not. Huppert and co-workers³ cited the work of McVay and Sprund in 1951, who showed that cultures of oral, vaginal and rectal material were positive for *Candida albicans* in 63 per cent of cases after Aureomycin was given, whereas none was positive before. This phenomenon has been observed with most antibiotics administered orally or parenterally.

In the case of *Hemophilus influenza* meningitis reported herein, many drugs were given, including penicillin, chloramphenicol, sulfadiazine, sulfamerazine, sulfisomidine and streptomycin. The treatment was prolonged because of the apparent relapse of meningitis. The diagnosis of disseminated moniliasis in this patient was confirmed by multiple cultures of materials from various sites (blood, urine and subcutaneous abscess). The patient had no sequelae. The role of potassium iodide must be assessed. Certainly the stopping of antibiotics and drainage of the abscesses contributed to the recovery.

SUMMARY

In a case of *Hemophilus influenza* (type B) meningitis treated with multiple antibiotics and sulfa drugs, systemic moniliasis developed during antibiotic therapy. The patient recovered after surgical drainage of subcutaneous abscesses, discontinuation of the antibiotics and intensive treatment with a saturated solution of potassium iodide. A portion of the literature on the subject of moniliasis is discussed. The cause of systemic monilia has not been established at this time.

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REFERENCES

1. Brown, C., Jr., Propp, S., Guest, C. M., Beebe, R. T., and Early, L.: Fatal fungus infections complicating antibiotic therapy, J.A.M.A., 152:206, May 16, 1953.

2. Browne, S. G.: Moniliasis following antibiotic therapy, *Lancet*, 266:393, February 20, 1954.

3. Huppert, M., MacPherson, D. A., and Cazin, J.: Pathogenesis of *Candida albicans* infection following antibiotic treatment. 1. The effect of antibiotics on the growth of *Candida albicans*, *J. of Bact.*, 65:171, Feb., 1953.

4. Klapheke, M. A., and Harter, J. S.: Report of a case of systemic moniliasis, *Dis. Chest*, 24:332, Sept., 1953.

5. Rankin, N. E.: Disseminated aspergillosis and moniliasis associated with agranulocytosis and antibiotic therapy, *Brit. Med. J.*, 4816:918, April 28, 1953.

6. Sharp, J. L.: The growth of *C. albicans* during antibiotic therapy, *Lancet*, 266:390, Feb. 20, 1954.

Nitrofurantoin in Treatment of Coliform Bacteremia

Report of a Case

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THE USE OF FURADANTIN® (nitrofurantoin, N. N. R.), one of the group of antibacterial nitrofurans, has been established in the treatment of resistant strains of certain gram-positive and gram-negative bacterial infections of the urinary tract. The general literature was reviewed by Trafton and co-workers⁹ but the treatment of bacteremia was not included. In a medical research forum at the New York Academy of Medicine, Friedgood and Ripstein² briefly mentioned six cases of *B. proteus* septicemia successfully treated with Furadantin but gave no details.

Consequently, reports to date do not deal with bacteremia but rather with infections limited to the urinary tract. The purpose of the present communication is to report in detail the successful treatment of a case of persistent bacteremia due to *E. coli*, the focus of which was presumably the urinary tract, and to discuss the possible relationship of the disease in this case to the administration of adrenocortical hormones. In this particular case, bacteremia was not cleared by administration of streptomycin in combination with certain of the broad spectrum antibiotics.

CASE REPORT

A 63-year old man had sudden onset of a shaking chill and fever, followed shortly by nausea, vomiting and prostration. Chills continued, prostration increased and the patient was admitted to hospital at night, six hours after the onset of symptoms. The patient had had mild dysuria and low backache for two days before the acute illness developed. Upon physical examination the patient was observed to be prostrated and the skin was flushed and dry. The temperature was 101° F., the pulse rate 104 and blood pressure 140/75 mm. of mercury. Severe shaking chills continued and at 1 o'clock in the morning, following an unusually heavy chill, the

temperature was 107° F. (This temperature was confirmed.) At that time a specimen of blood was obtained for culture, and 600,000 units of aqueous procaine penicillin then was administered intramuscularly.

The following morning, the temperature was 103.2° F., the pulse rate 112 and blood pressure 74/50 mm. of mercury. The patient was lethargic but could be aroused. The skin was flushed and dry but without eruption or petechiae. Pulses were equal, rapid and regular. Heart sounds were somewhat distant but there were no murmurs. The lungs were clear. The abdomen was flat and no masses were palpated. Slight tenderness was noted in the right upper quadrant.

The urine was turbid with acid reaction, specific gravity of 1.018, a 1 plus reaction for albumin and a trace of sugar. Acetone and diacetic reactions were negative. Upon microscopic examination of centrifuged sediment, a solid field of erythrocytes and 10 to 15 leukocytes per high power field were noted. A few gram-negative rods were seen. There was a heavy growth of *E. coli* on a culture of the urine.

Erythrocytes numbered 4,250,000 per cu. mm. and the hemoglobin content was 13.2 gm. per 100 cc. Leukocytes numbered 7,650 per cu. mm.—40 per cent stab neutrophils, 42 per cent adult neutrophils, 7 per cent lymphocytes, and 1 per cent monocytes. There was pronounced toxic granulation of the neutrophils.

In view of the urinary abnormalities and the relative leukopenia with a pronounced shift to the left, it appeared clear that the patient had bacteremia from a focus probably in the urinary tract. Accordingly, 500 mg. of chlortetracycline was administered intravenously without delay and a similar dose was given six hours later. The hypotension and obvious apathy suggested the possibility of impending shock, perhaps due to adrenal cortical damage, and 40 cc. of adrenal cortical extract was given intravenously over an 8-hour period. Cortisone was begun in a dosage of 200 mg. daily, given by mouth at 6-hour intervals.

Early in the afternoon of the day following admittance, a report was received that gram-negative bacilli grew on a culture of blood. A combination of oxytetracycline and streptomycin was begun in total daily doses of 1.5 gm. and 4.0 gm. respectively, the latter intramuscularly.

While arrangements were being made for the administration of adrenal cortical extract, the blood pressure decreased to 68/50 mm. of mercury. After the administration of 10 cc. of adrenal cortical extract, the pressure rose to 82/50 mm. and by the time of administration of the second 10 cc. dose one hour later, it was 98/56 mm.

Data on the subsequent course are given in Chart 1. Daily blood cultures were obtained, the blood pressure was carefully observed, and leukocyte and differential counts were made daily. The blood pressure rose to 130/78 mm. of mercury the day

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Submitted November 11, 1955.

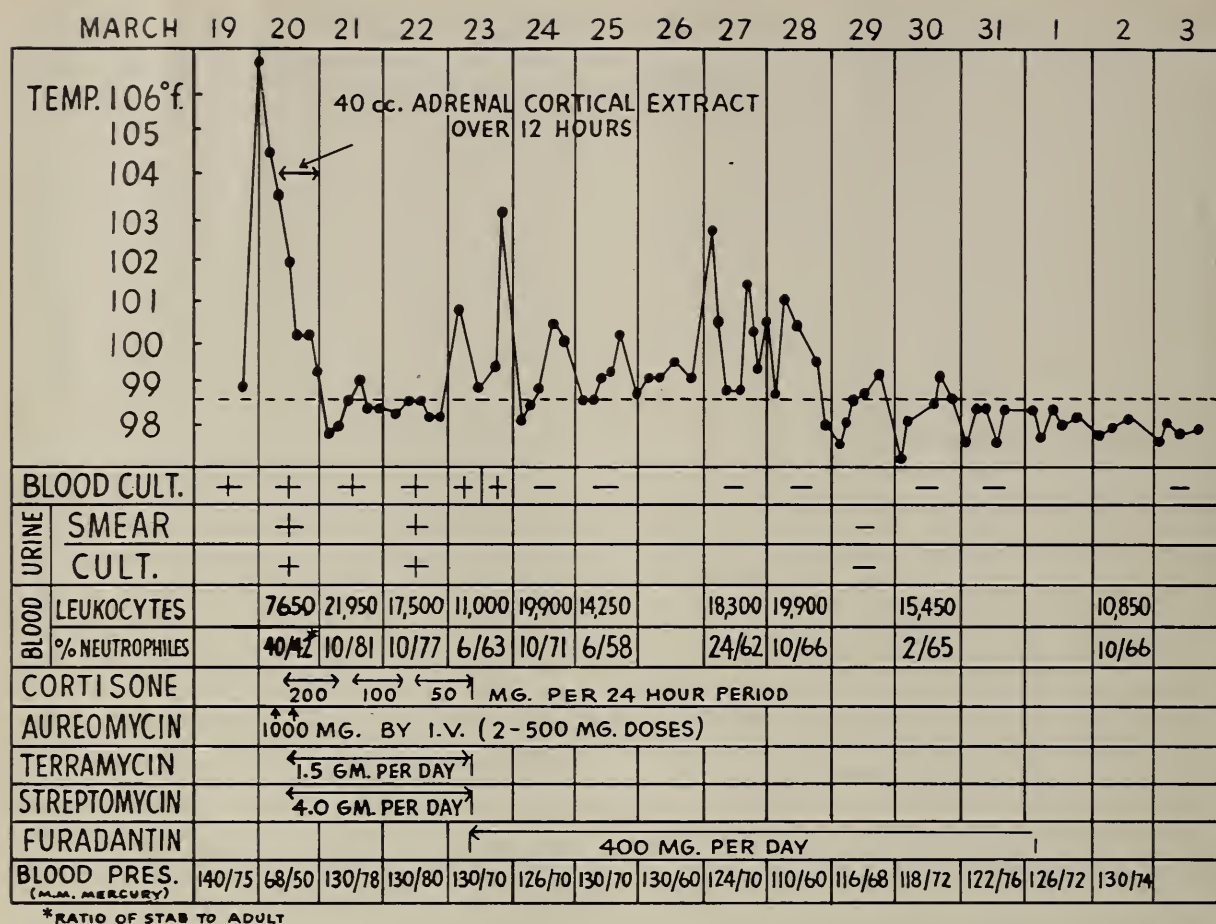


Chart 1. Clinical, laboratory and therapeutic data on a case of *E. coli* bacteremia successfully treated with Furadantin (nitrofurantoin) after unsuccessful use of streptomycin, chlortetracycline (Aureomycin), and oxytetracycline (Terramycin). Note that initiation of Furadantin coincides with cessation of cortisone administration.

after administration of adrenocortical hormones was begun and thereafter did not significantly change (Chart 1). Bacteremia continued—one or two colonies per cc. of blood on the culture. The leukocyte content rapidly rose and the shift to the left decreased. Twenty-four hours after the administration of cortisone was begun, the dosage was reduced to 100 mg. daily, and on the third day to 50 mg. daily. The patient's clinical appearance improved but on the fourth day in the hospital the temperature began to rise even though albumin had disappeared from the urine and only scattered erythrocytes and a few leukocytes were seen in microscopic examination of the sediment. Repeated physical examinations were carried out but a specific focus of infection in the urinary or gastrointestinal tracts could not be identified. No heart murmurs were heard.

With the temperature rise to 100.8° F. on the fourth day and the fact that bacteremia was still present as of the preceding day (Chart 1) a second culture of blood (which subsequently proved to be positive) was made and treatment was changed abruptly. Oxytetracycline and streptomycin were discontinued and Furadantin was administered by

mouth, 100 mg. every six hours. Cortisone was also discontinued at the same time.

Following this change in therapy, all blood cultures were sterile and the temperature gradually decreased. On the eighth hospital day the leukocyte content of the blood increased and young forms of neutrophils reappeared. Upon physical examination the left testicle was observed to be enlarged, reddened and very tender. A urological consultant attributed these symptoms to acute epididymitis. Appropriate local treatment led to a regression of the lesion and favorable changes in the leukocyte content and differential.

Cystopyelographic examination was carried out on the tenth hospital day. The anterior urethra was normal. There was slight enlargement of both lateral lobes of the prostate but no enlargement of the middle lobe. Generalized contracture of the neck of the bladder was noted. Sphincter tone was good. The bladder wall showed many coarse trabeculations and openings of three small diverticula were noted. Both ureteral orifices were normal in size, position and appearance. Retrograde pyelograms were made, and no abnormality was observed in the upper urinary tracts, but there was an incompletely filled diver-

ticulum about 3 cm. in greatest diameter extending laterally from the left side of the base of the bladder. A single smaller diverticulum about 1 cm. in diameter was observed at the left side of the fundus. A film made with the patient upright, following withdrawal of the catheters, showed satisfactory drainage of both upper urinary tracts and normal mobility of both kidneys.

In view of the presence of diverticula, catheter drainage of the bladder was begun and was continued throughout the remaining period of hospitalization.

Further roentgenographic studies revealed pulmonary emphysema with old pleuritis of the left base, atherosclerosis of the aorta and (after a double dose of Telepaque®) poorly functioning gallbladder. No abnormality was observed in films of the colon.

Furadantin was discontinued after it had been given nine days with a dosage of 400 mg. daily. Nonprotein-nitrogen content was 28.6 mg. per 100 cc. of blood the day before Furadantin therapy was started. After five days it was 43.0 mg., and at the end of nine days 44.0 mg. per 100 cc. The day following discontinuance of Furadantin it was 39.2 mg. The patient continued to improve and was discharged 14 days after admittance. There was no recurrence of symptoms up to one year after discharge.

Results of disc sensitivity tests carried out on the organism isolated from the first culture of blood were reported by the Peralta Hospital laboratory as follows: Resistant to penicillin, erythromycin, chloramphenicol, chlortetracycline and oxytetracycline; moderately sensitive to streptomycin; highly sensitive to Furadantin. Studies on the same organism carried out in the Bacteriology Laboratory of Stanford University Hospital by the plate-screening method of Rantz⁷ revealed the following: Resistant to penicillin, polymixin, erythromycin and bacitracin; sensitive to streptomycin, oxytetracycline-chlortetracycline, chloramphenicol and neomycin. Identification of the organism as *E. coli* was confirmed.

DISCUSSION

The portal of entry of the infecting organism was doubtless the urinary tract, probably the bladder diverticula, in which there was mild cystitis. At no time during the course of the illness was there any evidence of acute prostatitis or prostatic abscess. Epididymitis may have occurred only as a complicating factor during convalescence. Likewise there was no evidence of significant abnormality of the gastrointestinal tract.

The success obtained with Furadantin in clearing the bacteremia is quite clear, since blood cultures taken up to and through the afternoon of the day Furadantin therapy was begun were positive. Within 18 hours after administration of Furadantin, the blood culture became sterile, as did subsequent cultures. (Cortisone was discontinued at the same time, a factor to be taken up later in this discussion.) It is likewise evident that streptomycin, chlortetra-

cycline, and oxytetracycline failed to clear the blood stream, although there was an apparent clinical improvement for several days after these agents were used. The combination of streptomycin and oxytetracycline cannot be considered to be an antagonistic combination, since the simultaneous use of streptomycin and tetracyclines is recognized as clinically proper for the treatment of resistant infections due to certain gram-negative bacilli⁸ and, in some instances, not theoretically improper.⁴

The mechanism of clearing the blood stream is of interest, since in this case the focus of infection was probably cleared by Furadantin with a resultant cessation of further seeding of the blood stream. It is reasonable to suppose that the concentration of Furadantin in the blood stream was not sufficient to act directly upon circulating organisms as do other generally more bactericidally potent agents.

The discrepancy between the two methods—the commercial disc method and the plate-screening method—of sensitivity testing for the strain of *E. coli* is worthy of note and points up the fact that these *in vitro* tests do not necessarily always parallel clinical response. They must be looked upon as useful in the way of general guidance but should never supplement clinical judgment and careful clinical observations made during the course of therapy.

The shock-like syndrome observed in this patient, with evidence of pronounced hypotension and apathy, is occasionally seen in cases of severe and overwhelming bacteremia. Whether, in the present patient, this was due to peripheral vascular collapse presumably due to bacterial toxins,¹ or to adrenal cortical damage as classically demonstrated in the Waterhouse-Friderichsen syndrome, or to some unknown kind of inhibition of the adrenal cortex, is not clear. Certainly, the use of adrenal cortical extract promptly raised the blood pressure, which then continued at a satisfactory level with the follow-up administration of cortisone. A similarly beneficial response was observed by the author in another case of overwhelming bacteremia with *E. coli*, treated in the same manner, in which the patient's condition was critical prior to adrenocortical hormone and antibiotic therapy.

The fact that two changes were made in treatment at the time bacteremia was cleared—namely, the institution of Furadantin by mouth and the discontinuing of cortisone—raises a question. While it seems clear that the use of Furadantin was the principal and important change, the possibility that cortisone may have played a role in the failure of the broad spectrum antibiotics must be considered. It is well known that the use of adrenocortical hormones may lead to the development of high levels of bacteremia⁶; however, it is likewise clinically known that the use of appropriate antibiotic agents will prevent such complications. Furthermore, Germuth, Ottinger, and Oyama³ have brought out the fact that such increased bacteremia is due not to a result of interference with the clearing mechanism but rather to the enhanced multiplication or entry from the infected tissues.

Jawetz⁵ has gone one step further and has studied the effect of Cortisone on the therapeutic efficacy of antibiotics in experimental infections. His data show that cortisone may interfere with the therapeutic effectiveness of antibiotics, the magnitude of the effect depending upon the severity of infection and the dosage of the antibiotic. However, in his studies the reduction of the therapeutic effectiveness of the antibiotic by cortisone was not evident when the antibiotic agent was given in large excess beyond the curative dose. Consequently, it is clear that cortisone usually plays little role in clinical medicine if the dosage of the antimicrobial agent is well in excess of the minimal curative dose.

Unless the strain of *E. coli* in the present case was an organism unusually resistant to the certain broad spectrum antibiotics employed, the therapeutic superiority of Furadantin in this case is supported.

SUMMARY

Bacteremia due to *E. coli* disappeared with the administration of Furadantin after failure with streptomycin, chlortetracycline, and oxytetracycline therapy. It was considered that Furadantin did not clear the blood stream *per se*, but rather cleared the focus of infection.

A shock-like syndrome due to the bacteremia was controlled by the use of adrenal cortical extract and cortisone. The possible inhibitory effects of the adrenocortical hormones on the broad spectrum antibiotics is discussed, and it should be pointed out that improvement coincided with the simultaneous cessation of their use and the administration of Furadantin.

459 30th Street, Oakland 9.

REFERENCES

1. Fine, J.: Relation of bacteria to the failure of blood—volume therapy in traumatic shock, *New England J. Med.*, 250:889, 1954.
2. Friedgood, C. E. and Ripstein, C. B.: Furadantin in the treatment of infections due to *B. proteus*, *Bull. N. Y. Acad. Med.*, 30:322, 1954.
3. Germuth, F. G., Ottinger, B., and Oyama, J.: The influence of cortisone on the evolution of acute infection and the development of immunity, *Bull. Johns Hopkins Hosp.*, 91:22, 1952.
4. Jawetz, E. and Gunnison, J. B.: Studies on antibiotic synergism and antagonism: A scheme of combined antibiotic action, *Antibiotics and Chemotherapy*, 2:243, 1952.
5. Jawetz, E.: Effect of cortisone on therapeutic efficacy of antibiotics in experimental infections, *Arch. Int. Med.*, 93:850, 1954.
6. Kass, E. H. and Finland, M.: Adrenocortical hormones in infection and immunity, *Ann. Rev. Microbiol.*, 7:361, 1953.
7. Rantz, L. A. and Rantz, H. H.: Sensitivity of various clinically important bacteria to four antibiotics—results obtained with a plate-screening method, *Stanford Med. Bull.*, 11:183, 1953.
8. Spittel, J. A., Martin, W. J., Wellman, W. E., and Geraci, J. E.: Bacteremia owing to *Escherichia Coli*: A review of 65 cases, *Proc. Staff Meetings Mayo Clinic*, 29:447, 1954.
9. Trafton, H. M. et al.: Furadantin in urinary-tract infections. *New England J. Med.*, 252:383, 1955.

Presumptive Herpes Zoster Meningoencephalitis

RICHARD KOCH, M.D., Los Angeles

HERPES MENINGITIS in the differential diagnosis of poliomyelitis is unusual. That is why the following case is being reported. During a busy admitting night at the Communicable Disease Unit of the Los Angeles County General Hospital many patients are admitted with a diagnosis of acute anterior poliomyelitis, then are found to have an entirely different and unsuspected disease. Several of the more common are various types of bacterial meningitis, mumps meningoencephalitis, influenza syndrome and, more rarely, spinal coccidioidomycosis, infectious neuritis or Guillain-Barré syndrome, and brain or cord tumor.

It is not generally known that the herpes zoster virus can also cause symptoms similar to those of acute poliomyelitis. In 1947 McCormack¹ reported a case in a four-year-old girl with complete recovery. Nachman² added three more cases to the pediatric literature in 1951. In those cases also there was complete recovery. Terterka and co-workers³ reported 44 cases of paralysis accompanying herpes in adults and only seven of the patients recovered completely. The benign course of the disease in a 19-year-old girl, the subject of this report, coincided with the course of the disease reported in the pediatric literature.

REPORT OF A CASE

A 19-year-old girl of Jewish parentage was admitted with complaint of dull prefrontal headache for five days. When pain in the neck, stiffness of the back and nausea developed, she was referred to the Communicable Disease Hospital with suspicion of poliomyelitis. On physical examination she appeared acutely but not severely ill. The temperature was 99° F., the pulse rate 74, respirations 20 per minute and blood pressure 120/80 mm. of mercury. The skin was clear except for one tiny vesicle on an erythematous base on the left flank. No abnormalities were observed in the head, eyes, ears, or throat. The neck and back were moderately stiff. The chest was clear. The heart was normal. The abdomen was soft and there were no palpable abnormalities. Hamstring spasm was not present.

On neurological examination there were no bulbar signs or reflex changes. No muscular weakness was noted.

Results of examination of the blood and urine were within normal limits. The cerebrospinal fluid was ground glass in appearance; and on microscopic examination showed 339 cells per high power field—95 per cent lymphocytes. The spinal fluid pressure was 170 mm. of water and the fluid flowed freely. The Pandy test reaction was 1 plus, and the sugar content normal.

From the Service of Dr. A. G. Bower, Chief Physician, Communicable Disease Unit, Los Angeles County General Hospital.

The presumptive admitting diagnosis was non-paralytic poliomyelitis. The patient continued to complain of headache and of an irritating pain in the left abdominal wall. During the next 48 hours, several patches of small vesicles appeared along the course of the twelfth dorsal nerve. Three days after admission the cerebrospinal fluid was again examined and showed 96 cells per high power field, chiefly lymphocytes. There was a positive Pandy reaction and normal sugar content. It was the consensus of the senior consultant and the attending staff that the diagnosis was herpes zoster meningoencephalitis. The symptoms cleared completely within a week and the patient was discharged. An electroencephalogram, x-ray film of the chest, results of tuberculin and coccidioidin skin tests, and of two mumps complement fixation tests taken a week apart, all were normal. Muscle examination by the

physiotherapy department at the time of discharge showed no abnormalities. There was no history of exposure to the herpes virus at any time.

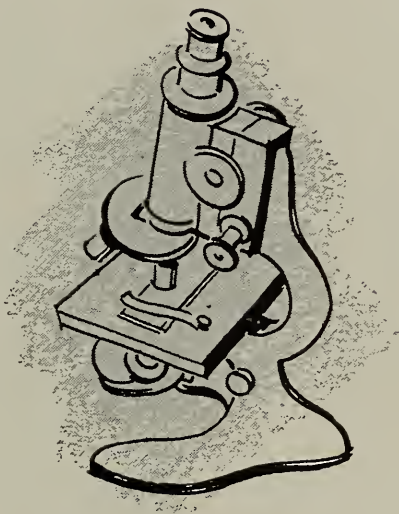
SUMMARY

A case of meningoencephalitis accompanied by herpes zoster, which is thought to be the etiologic agent, in a 19-year-old girl is reported. The patient completely recovered.

4614 Sunset Boulevard, Los Angeles 27.

REFERENCES

1. McCormack, G. W.: Encephalitis associated with herpes zoster, *Jour. of Pediat.*, 30:473, 1947.
2. Nachman, A. R.: Neurologic complications of herpes zoster, *Pediatrics*, 7:200, 1951.
3. Terterka, J. H. and O'Sullivan, M. E.: Motor complications of herpes zoster, *J.A.M.A.*, 122:737, 1943.



EDITORIAL

Cancer Detection: The Present Status

THE INCREASING PREVALENCE of cancer continues to be a source of grave concern to all physicians. As infectious and metabolic diseases become better controlled, and as nutrition and housing improve, the life span of citizens keeps increasing, and a higher proportion of citizens are living to the ages when cancer is common. The annual case *incidence* rate is about 40 per 100,000 at age 25, 475 per 100,000 at age 50, and 1,900 per 100,000 at age 75. The trends for cancer *prevalence* and *mortality* are very similar to the incidence.¹ At the same time, it must be remembered that while cancer is a grave disease of tremendous emotional impact, yet as a source of human misery it is probably far exceeded by mental disorders, articular diseases and cardiovascular conditions. In this perspective the following paragraphs may be considered.

The reported cancer incidence rate in 1947 was 319 per 100,000 population (or 30 per cent higher than in 1937). More than half a million new cases of cancer are now being diagnosed in the United States each year and this number is likely to increase to more than 750,000 by 1975. Improved methods of detection, better trained physicians, economic prosperity and increasing average age of population all contribute to the increasing recognition of the disease.

Much cancer is still first detectable at a stage when cure is improbable if not impossible. However, approximately one-half of cancers occur in the so-called accessible sites—the skin, lip and oral cavity, breast, cervix and rectum. The case for cancer detection procedures is based on the premise that periodic physical examination of asymptomatic persons will uncover localized but unrecognized cancer of these sites in such numbers as to be rewarding, and commensurate with the time, energy and cost involved.² This objective could be reached only if there is an informed population which will

persist in being screened year after year. It is obvious that only a minor fraction of the population will interest itself in such a regular program for their life span after age 45. Therefore, the contribution of this program, even if launched on a mass scale, would effect only a fractional improvement in the total problem. For this reason, valiant efforts to discover a short-cut to cancer detection continue to be made—for example, a test which might not need more than cursory cooperation by the asymptomatic individual.

How may cancer be mass-detected at a time when cure is probable? Available screening methods include (a) biochemical tests, (b) cytologic tests, and (c) roentgenologic methods. Extensive work has been conducted in various parts of the country with biochemical tests for cancer but, as may be read elsewhere in this issue, without achieving a reliable test to date.³ Cytologic methods offer some promise. Many reports are available to illustrate the value of cytologic tests in individual office practice, where the results of the test, either positive or negative, are weighed in the light of the associated physical findings and history of the patient—and, incidentally, where the patient is likely to be motivated to follow promptly the physician's advice in the event of an unexpected tumor being found. However, when cytology is applied as a mass screening procedure, the number of false positives and false negatives has been a source of considerable unhappiness and not a little morbidity. Work is currently in progress using automatic devices for scanning smears obtained from various body orifices, notably the cervix, but their true usefulness in the detection of curable cancer remains to be shown. Roentgenologic methods are obviously not of much value for accessible site cancers; for cancers of the inaccessible sites, notably stomach, lung and abdominal viscera, they have some, but unfortunately rather limited, value. In other words, by the time a given cancer is large enough to cast a clear shadow on

the average *screening* roentgenogram or photofluorogram (whether that cancer be of lung, stomach or elsewhere) it usually has to have an average diameter of about 2 cm. An average epithelial cancer of such size contains about 260,000,000 cancer cells, and all too often some of these cells have already metastasized via vascular or lymphatic channels. Detection in such cases may be no longer "early" or life saving.

What is the value of periodic physical examination? A rather extensive trial of cancer detection centers was sponsored in California a few years ago.⁴ The centers were conducted in four different communities during a period of three years. It proved impossible to limit examinations to apparently asymptomatic persons. It also proved impossible to maintain the interest of competent examiners and nurses. This is readily understandable when, for example, the yield of cancer of the cervix in women over 30 is only about 30 per 100,000 per annum, and the yield of rectal cancer about 20 per 100,000 adults per year. After studying the results, the Cancer Commission of the California Medical Association concluded that a more practical and widespread approach to the problem of earlier tumor detection would be emphasis on making "every physician's office a detection center," stressing the annual physical examination of persons over 45 years of age, especially for tumors in the five common accessible sites. These are the tumors most readily curable today; frequently they can be detected by a simple physical examination.

The results of such a program were studied by Dr. C. P. McCullough and his colleagues in one county of California in 1952-53.⁵ Several physicians in that county made an annual "cancer detection examination" available to those adults who wished to have it. The yield in cancers was recorded and the program did appear to be as effective as any other cancer detection program yet reported.

The commonest organ site of cancer is the female breast. To aid in the earlier detection of small, potentially curable breast tumors, many physicians recommend periodic self-examination of the breast, especially by women past the age of 45. Women are advised to examine the breast following each menstrual period, or, after the menopause, on a certain date such as the first of each month. Providing this program does not induce an undesirable degree of cancerphobia or hypochondriasis, it is believed that it will be effective in bringing a significant number of curable breast tumors to medical attention at an earlier phase than has been the case in the past.

Cancer of the lung is becoming an increasingly common tumor in males, following closely the incidence of cancers of the stomach and colon. It was hoped at one time that routine chest roentgen-

ography would disclose these tumors at a curable stage. Judging by the work of Boucot and others,⁶ periodic x-ray examination of males past the age of 50 has resulted in disclosing about 50 bronchogenic carcinomas per 100,000 males examined per annum. Unfortunately, the three-year survival rates of men operated on for removal of these apparently early-detected carcinomas are on the average only 11 per cent. In other words, roentgen screening discovers tumors which all too often have already metastasized. With more radical thoracic operations, this salvage rate will be increased, but a more refined screening method is still needed for this disease.

Annual proctoscopic examinations have been recommended for persons over 45 years of age. No extensive data have yet been published as to the results obtained. A small but significant proportion of rectal polyps are pre-carcinomatous and this method should undoubtedly aid in disclosing more curable rectosigmoid cancers than are discovered at present.

One of the very practical problems in cancer control remains the fact that the detection of small asymptomatic growths in an otherwise apparently healthy person is not always followed by prompt action; many citizens are reluctant to part with what they regard as vital organs when they feel quite well. Delay often vitiates the value of detection. Despite these difficulties, it is believed that periodic simple physical examination of asymptomatic persons can be of distinct value as an adjunct phase of our cancer control program. Such examinations are best conducted by interested physicians as part of office practice. County medical society units perhaps could assist the public by maintaining rosters of qualified interested physicians able and willing to perform such annual examinations. Until that happy day arrives when cancer can be prevented, wide application of this periodic physical examination in persons over the age of 45, coupled with prompt effective treatment, should produce a decrease of about 15 per cent in cancer mortality over and above that currently achieved.

L. HENRY GARLAND, M.D.

REFERENCES

1. Heller, J. R., Cutler, S. J., and Haenszel, M. A.: Some observations on the epidemiology of cancer in the U. S., J.A.M.A., 159:1628, Dec. 24, 1955.
2. Cancer Commission, C.M.A.: Cancer Detection, Calif. Med., 78:473, May, 1953.
3. Cancer Diagnostic Tests: Statement on Penn-Dowdy test, Calif. Med., 83:393, Nov. 1955.
4. Garland, L. H.: Cancer detection centers, Calif. Med., 72:99, Feb., 1950.
5. Garland, L. H., and McCullough, C. P.: Cancer detection, Calif. Med., 80:65, Feb., 1954.
6. Garland, L. H.: Detection of cancer of the lung, Am. J. Roentgenol. and Rad. Ther., 74:402, 1955.

California MEDICAL ASSOCIATION

NOTICES & REPORTS

Executive Committee Minutes

Tentative Draft: Minutes of the 254th Meeting of the Executive Committee, San Francisco, Sir Francis Drake Hotel, December 14, 1955.

The meeting was called to order by Chairman Heron in the Tamalpais Room of the Sir Francis Drake Hotel, San Francisco, at 4:00 p.m., Wednesday, December 14, 1955.

Roll Call:

Present were President Shipman, Council Chairman Lum, Auditing Committee Chairman Heron, Secretary Daniels and Editor Wilbur. Absent for cause were President-Elect Charnock and Speaker Doyle.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Clancy, Thomas and Gillette of C.M.A. staff; legal counsel Hassard; health insurance consultant Watson and Messrs. Robert Tracy and John Kelly of the Cornell Automotive Crash Injury Research.

1. *Membership:*

(a) On motion duly made and seconded, 23 members whose 1955 dues had been received since the last Council meeting were voted reinstatement as active members.

(b) On motion duly made and seconded in each instance, four applicants were voted Associate Membership. These were: J. E. Mannion, Walter Rapaport, and Bert S. Thomas, Sacramento County; Zane Miller, San Luis Obispo County.

(c) On motion duly made and seconded in each instance, reductions of dues were voted for six applicants because of illness or postgraduate study.

2. *Medical Assistants:*

The committee reviewed the request discussed at the preceding Council meeting for appointment of an advisory committee to the California Medical Assistants Association. On motion duly made and seconded it was voted to appoint H. Clifford Loos

as chairman of such committee and Doctors E. E. Wadsworth, Jr., of Alhambra and H. C. Moffitt, Jr. of San Francisco as members of this committee.

3. *California Society for Internal Medicine:*

A communication from the California Society for Internal Medicine, requesting advice on the desirability of requiring county or state medical association membership as a prerequisite for membership in that society, was reviewed and given to legal counsel for reply.

4. *California State Board of Health:*

Discussion was held on possible nominees to fill one present and two impending vacancies on the California State Board of Health. On motion duly made and seconded, it was voted to propose Doctors A. A. Morrison, Lowell Rantz, Dave Dozier and George C. Griffith for such appointments.

5. *1956 Dues:*

Mr. Hunton presented, for the information of the committee, a letter from a component county society, which had adopted a resolution opposing the 1956 dues of \$50 because they included an appropriation to the American Medical Education Foundation. Members of the society had expressed their opinion that such contributions should be on an individual and voluntary basis.

SIDNEY J. SHIPMAN, M.D. President
DONALD A. CHARNOCK, M.D. President-Elect
JAMES C. DOYLE, M.D. Speaker
PAUL D. FOSTER, M.D. Vice-Speaker
DONALD D. LUM, M.D. Council Chairman
ALBERT C. DANIELS, M.D. Secretary-Treasurer
IVAN C. HERON, M.D. Chairman, Executive Committee
DWIGHT L. WILBUR, M.D. Editor
JOHN HUNTON Executive Secretary

General Office, 450 Sutter Street, San Francisco 8

ED CLANCY Director of Public Relations
Southern California Office:

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6. *Poliomyelitis Information:*

Doctor Wilbur presented an article on poliomyelitis treatment prepared and submitted by the medical director of the National Foundation for Infantile Paralysis and sought an opinion on whether or not it should be published in *CALIFORNIA MEDICINE*. On motion duly made and seconded, it was voted to leave such publication to the discretion of the editor.

7. *Cornell Automotive Crash Injury Research:*

Messrs. Robert Tracy and John Kelly described the survey being made by Cornell University Medical School on automotive crash injuries and sought approval of the C.M.A. for this study to be carried on in selected areas of California. On motion duly made and seconded, it was voted to endorse this project and to cooperate as liaison between the surveyors and the county medical societies.

8. *State Department of Education:*

A request from Doctor Ulrich A. Fritschi that he be relieved of his membership on the Advisory Committee to the State Department of Education was presented. On motion duly made and seconded, it was voted to suggest that Doctor Edmund E. Simpson of Sacramento be recommended for appointment to this committee and that Doctor Fritschi be thanked for his past services.

9. *Committee on Scientific Work:*

(a) At the suggestion of the Committee on Scientific Work and on motion duly made and seconded, it was voted to present to guest speakers at Annual Sessions an honorarium of \$50 daily for the days required to make their guest appearances, in addition to the usual allowances of transportation and maintenance of guest speakers and their wives.

(b) Discussion was held on the possible advantages of advance registration at Annual Sessions. It was pointed out that about one-third of the physicians attending these sessions already enjoy advance registration advantages. Mr. Hunton was instructed to look into possible advantages or disadvantages of employing this system.

10. *Public Relations:*

Mr. Clancy reported on several current events in the public relations program and presented a sketch of the exhibit proposed for the Cavalcade of Health of the Los Angeles County Medical Association. On motion duly made and seconded, and in line with the Council's decision at its last meeting, it was voted to allow up to \$2,500 for the preparation and maintenance of this exhibit.

11. *Veterans' Medical Care:*

Mr. Hassard discussed a recent communication from the chief medical director of the Veterans Administration which proposed that the "home-

Proposed Constitutional Amendment

(First Publication)

The following proposal was introduced at the 1955 Annual Session of the California Medical Association. It is to be acted upon at the 1956 session:

WHEREAS, a new corporation has been established called **PHYSICIANS' BENEVOLENCE FUND, INC.**, to administer the duties under Section 6 of Article IV of the Constitution of the California Medical Association; now, therefore, be it

Resolved: That Section 6 of Article IV of the Constitution which now reads:

"At least \$1.00 out of the annual dues paid by each active member of the Association shall be allocated to the Physicians' Benevolence Fund and shall only be used for the purposes as set forth in the By-Laws."

is hereby amended to read as follows:

"At least \$1.00 out of the annual dues paid by each active member of the Association shall be allocated to the Physicians' Benevolence Fund, Inc., a corporation, and shall be used for the purposes as set forth in that corporation's Articles and By-Laws."

town" medical care program for service-connected disabilities of veterans be dispensed with in favor of a direct handling of such cases by the VA. On motion duly made and seconded, the following resolution was approved:

Resolution Adopted by C.M.A. Executive Committee December 14, 1955

WHEREAS, there are 1,832,000 veterans living in California; and

WHEREAS, there are 318,000 treatments per year rendered to veterans by private physicians for their service-connected disabilities under the California Physicians' Service-Veterans Administration Home Town Care Program; and

WHEREAS, the cost to the government is less through the treatment of service-connected veterans by Home Town Physicians than through maintenance of clinic centers for this purpose; and

WHEREAS, the veteran receives prompt and effective treatment through his family Home Town Care Physician, eliminating the added travel cost to the government for treatment at clinic centers; and

WHEREAS, if it is the intent of the government to continue to supply the veteran with treatment for his service-connected disabilities, the C.P.S.-V.A. Home Town Care Program is essential in California; and

WHEREAS, if the C.P.S.-V.A. Home Town Care Program is discontinued in California the veterans may no longer have the services of their family physician available to them; and

WHEREAS, the California Physicians' Service is an integral part of the California Medical Association, the effective cooperation of the medical profession can best be maintained

through the continued use of the California Physicians' Service: now, therefore, be it

Resolved: That the veteran should not be deprived of the high standard of medical care conveniently available to him by discontinuing the cooperative arrangement that has made this program extremely successful continuously since 1946; and be it further

Resolved: That the Veterans Administration be urged to extend the C.P.S.-V.A. Home Town Care Program to include all veterans with service-connected disabilities, rather than to eliminate such program.

12. Medical Review and Advisory Board:

Mr. Waterson and Mr. Hassard discussed a proposal that defense attorneys handling professional liability cases should establish an organization of their own and pointed out that the initial meeting of such a group would require modest financing to

cover the expense of not more than 25 attorneys. On motion duly made and seconded, it was voted to recommend to the Council that such expenses be authorized when and if such a meeting is arranged.

13. Rollen Waterson Associates:

Mr. Waterson presented a budget to cover his anticipated services during January, 1956 (\$1,500 for a retainer and \$200 for travel and miscellaneous expenses) which, on motion duly made and seconded, was approved.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 8:30 p.m.

IVAN C. HERON, M.D., *Chairman*

ALBERT C. DANIELS, M.D., *Secretary*

In Memoriam

BARNETT, GEORGE D. Died in Stanford, December 9, 1955, aged 71, of myocardial infarction. Graduate of Stanford University School of Medicine, Stanford University-San Francisco. 1913. Licensed in California in 1913. Doctor Barnett was a member of the Santa Clara County Medical Society.



BELT, LEROY LORIN. Died in Spring Valley, September 23, 1955, aged 63, of coronary thrombosis. Graduate of Western Reserve University School of Medicine, Cleveland, Ohio, 1916. Licensed in California in 1952. Doctor Belt was a member of the San Diego County Medical Society.



BERTOLA, MARIANA. Died in San Francisco, December 7, 1955, aged 87. Graduate of Cooper Medical College, San Francisco, 1899. Licensed in California in 1899. Doctor Bertola was a retired member of the San Francisco Medical Society, the California Medical Association, and an associate member of the American Medical Association.



BROWN, JOHN MacKENZIE. Died in Los Angeles, December 31, 1955, aged 77. Graduate of the University of Western Ontario Faculty of Medicine, London, Ontario, Canada, 1899. Licensed in California in 1899. Doctor Brown was a member of the Los Angeles County Medical Association, a life member of the California Medical Association and an associate member of the American Medical Association.



GRAVES, REX VALE. Died December 3, 1955, aged 77. Graduate of State University of Iowa College of Homeopathic Medicine, Iowa City, 1903. Licensed in California in 1919. Doctor Graves was a member of the Orange County Medical Association, a life member of the California Medical Association, and an associate member of the American Medical Association.

ciation, and an associate member of the American Medical Association.



MACMILLAN, HUGH ALLEN. Died in Long Beach, December 10, 1955, aged 73. Graduate of the College of Physicians and Surgeons of Baltimore, Maryland, 1910. Licensed in California in 1922. Doctor MacMillan was a member of the Los Angeles County Medical Association.



MILLER, AUSTIN V. Died in San Francisco, December 31, 1955, aged 79, of cerebral hemorrhage. Graduate of Cooper Medical College, San Francisco, 1899. Licensed in California in 1899. Doctor Miller was a member of the Tulare County Medical Society.



MOUL, CHARLES T. Died in San Francisco, December 19, 1955, aged 66, of congestive heart failure. Graduate of Stanford University School of Medicine, Stanford University-San Francisco, 1916. Licensed in California in 1918. Doctor Moul was a member of the Alameda-Contra Costa Medical Association.



RAGAN, STEPHEN T. Died December 9, 1955, aged 67. Graduate of University Medical College of Kansas City, Missouri, 1911. Licensed in California in 1930. Doctor Ragan was a member of the Los Angeles County Medical Association.



SEIBERTH, JACOB. Died in Visalia, December 19, 1955, aged 82. Graduate of the Medical College of Indiana, Indianapolis, 1904. Licensed in California in 1925. Doctor Seibert was a member of the Tulare County Medical Society.

APPLICATION
FOR HOUSING
ACCOMMODATIONS

FOR YOUR CONVENIENCE in making hotel reservations for the coming meeting of the **California Medical Association**, April 29–May 2, 1956, Los Angeles, hotels and their rates are at the right. Use the form at the bottom of this page, indicating your first and second choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. **All requests for reservations must give definite date and hour of arrival as well as definite date and approximate hour of departure; also names and addresses of all occupants of hotel rooms must be included.**

Eighty-fifth Annual Session
CALIFORNIA MEDICAL ASSOCIATION
Los Angeles, California
APRIL 29–MAY 2, 1956

HOTEL ROOM RATES *

AMBASSADOR HOTEL	Single	Double	Twin Beds	Suites
3400 Wilshire Boulevard				
Main Building	9.00-17.00	.....	12.00-20.00	28.00-36.00
Garden Studios	15.00-21.00	.....	22.00-26.00	38.00-48.00
CHAPMAN PARK HOTEL				
3405 Wilshire Boulevard .....	.....	.....	12.00	20.00-25.00
THE GAYLORD HOTEL				
3355 Wilshire Boulevard	7.00-9.00	9.50-11.50	9.50-11.00	22.00-27.00
HOTEL CHANCELLOR				
3191 West Seventh Street	6.00-8.00	9.00-10.00	10.00-12.00	17.00-22.00
MAYAN HOTEL				
3049 West Eighth Street	4.50-6.00	5.00-7.00	7.50-10.00	.....

*The above quoted rates are existing rates but are subject to any change which may be made in the future.

ALL RESERVATIONS MUST BE
RECEIVED BEFORE: APRIL 1, 1956

CALIFORNIA MEDICAL ASSOCIATION
450 Sutter Street—Room 2000
San Francisco 8, California

Please reserve the following accommodations for the 85th Annual Session of the California Medical Association, in Los Angeles, April 29-May 2, 1956.

Single Room \$..... Double Bedded Room \$..... Twin Bedded Room \$.....
Small Suite \$..... Large Suite \$..... Other Type of Room \$.....
First Choice Hotel..... Second Choice Hotel.....

ARRIVING AT HOTEL (date).....Hour:.....A.M.....P.M. {Hotel reservations will be held until
Leaving (date).....Hour:.....A.M.....P.M. {6:00 P.M., unless otherwise notified

THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names of both persons for each double room or twin bedded room requested. Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

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Individual Requesting Reservations—Please print or type
Name..... County.....
Address..... City and State.....



WOMAN'S AUXILIARY

TO THE CALIFORNIA MEDICAL ASSOCIATION

Progress in Our Mental Health Program

One of the most recent projects undertaken by your Auxiliary has been the setting up of a program on mental health. Launched in 1953, this program has grown apace, until now nearly every county auxiliary has organized mental health activities of its own.

This project was started in recognition of the growing need in our society for an understanding of the factors affecting mental health. Our aim has been to acquaint Auxiliary members with the problems involved, to interest them in these problems, and to foster their participation in local volunteer activities which further mental health.

County auxiliaries have gone about the promotion of mental health by scheduling, at least once a year, a meeting devoted to discussion of the subject. Guest speakers and members participate. This year, our state chairman is stressing the importance of volunteers working with youngsters to help avert mental illness in later life. At the other end of the scale, volunteer work with elderly people is also encouraged, for as life expectancy increases so does the number of unoccupied—and often despondent—older folk.

We believe that our mental health program can be a very valuable one. In sponsoring it, we are once more encouraging our members to tackle a vital community problem related to the field of medicine. We feel that in so doing, we serve not only our communities better, but the medical profession as well.

Our Goal For Today's Health

It was back in 1931 that the A.M.A. first called on all of its auxiliaries to help promote a magazine which would give authentic and accurate information on health and medical problems to the public. Your Auxiliary responded by making the promotion of

Hygeia—as the magazine was then called—one of its two special projects for that year. And every year since then, the promotion of this magazine, now known as *Today's Health*, has been an important and constantly stressed activity of your Auxiliary.

Several different ways have been worked out to help increase sales of *Today's Health*. Each Auxiliary member is urged to subscribe to it personally, as well as to see to it that her husband's office subscribes. Members help place subscriptions in their dentist's offices, and among their friends. In some counties, auxiliaries work with their local societies in arranging for gift subscriptions to their local schools, Parent-Teacher Associations, hospital reading rooms, etc. One of our campaigns has been to interest registered nurses—for whom a special rate has recently been established—in *Today's Health*.

We find *Today's Health* interesting and informative reading ourselves, and agree that its wide circulation can be an important way of increasing understanding of the fields of health and medicine. Our Auxiliary goal for *Today's Health* has been set at one subscription per member—a big total with our membership well over 6,000. Last year we accounted for nearly 3,000 *new* subscriptions, and this year it looks as though we may double that number.

Aid to Flood Victims

Many physicians' families were hard hit during the recent widespread floods here in California. It is noteworthy that spontaneous offers of help were forthcoming from county auxiliaries and people in the medical profession all over the state. Your state Auxiliary joined in, too. Auxiliary members are still doing what they can as the flood victims get on with the job of salvaging and rebuilding what is left.

NEWS & NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

Dr. Edwin H. Lennette, chief of the State of California Viral and Rickettsial Disease Laboratory, Berkeley, has been appointed one of six members of the recently formed Commission on Rickettsial Diseases of the Armed Forces Epidemiologic Board, Washington, D. C. The new commission was organized to meet the need for increasing research in rickettsial diseases and to train personnel in this field.

LOS ANGELES

The College of Medical Evangelists **Alumni Postgraduate Convention**, five days of scientific lectures and refresher courses primarily to fit the needs of general practitioners, will be held March 4-8 in Los Angeles.

Refresher courses will be given March 4 and 5 at White Memorial Hospital and the three-day scientific assembly will be held March 6, 7 and 8 at the Biltmore Hotel.

The American Academy of General Practice grants its members formal postgraduate credit for registered attendance at the refresher course program and informal postgraduate credit for registered attendance in the Scientific Assembly.

* * *

University of California Extension and the U.C.L.A. Medical School will conduct a **civil defense program for physicians**, starting February 15, according to Dr. Thomas H. Sternberg, assistant dean for postgraduate medical education. Sessions are set for Wednesdays from 7 to 10 p.m. through March 28.

"It is of great importance that all physicians learn as much as possible about civil defense, Dr. Sternberg said. "The most important aspects of medical defense for the practicing physician will be presented in this civil defense course." The course will carry 18 hours of Academy of General Practice credit.

* * *

Officers of the **Metropolitan Dermatological Society** of Los Angeles elected for 1956 are as follows: President, Dr. Harold Price, North Hollywood; vice-president, Dr. Edward L. Murphy, Burbank, and secretary-treasurer, Dr. Laurence J. Underwood, Glendale.

* * *

The winner of the annual contest of the **Los Angeles County Physicians' Aid Association** which was held at the time of the Los Angeles Midwinter Medical Convention in January, was Dr. Alvin L. Chaffin of Kerman, California. As a result, Dr. Chaffin became the owner of a 1956 Cadillac.

* * *

The Los Angeles Radiological Society has announced the **Midwinter Radiological Conference**, February 25 and 26, at the Biltmore Hotel in Los Angeles. Reservations may be made through the conference secretary, Dr. Norval Zimmerman, 3875 Wilshire Boulevard, Los Angeles 5. The fee is \$20.00.

SAN DIEGO

The fourth annual meeting of the **California Blood Bank System** will be held February 24 and 25 at the El Cortez Hotel in San Diego. Host for the meeting will be the San Diego Blood Bank. Further information may be obtained by writing to the California Blood Bank System's Central office, 270 Masonic Avenue, San Francisco.

SAN FRANCISCO

A **fellowship in cancer chemotherapy** is available on the Tumor Chemotherapy Service, Department of Medicine, Stanford University School of Medicine, for the year July 1, 1956, to June 30, 1957, the school announced recently. The fellowship pays a stipend of \$300 a month. The appointment is for one year, but may be renewable for an additional year.

The fellowship was described as providing "opportunity for clinical investigation and basic research in the field of tumor chemotherapy, as well as for training in basic and clinical hematology."

Anyone interested should communicate with Dr. Byron E. Hall, Tumor Chemotherapy Service, Department of Medicine, Stanford University School of Medicine, San Francisco.

About 22,500 members of the San Francisco culinary trades will be eligible to join a new **California Physicians' Service** group program as a result of an agreement signed December 16 between C.P.S.-Blue Shield and representatives of the culinary workers unions and employers association, C.P.S. announced.

The agreement will permit union members and their dependents to choose between C.P.S.-Blue Shield and the Kaiser Foundation plan. The latter has been in effect since 1953. Coverage for employees of large hotels and clubs will begin February 1, and April 1 for employees of restaurants and small hotels.

Influential in the decision to change to California Physicians' Service, the announcement said, was the passage by the San Francisco Medical Society in March, 1955, of C.P.S.' \$6,000 income ceiling, which assures payment in full for contract services to C.P.S. members whose gross family incomes are less than \$6,000 per year.

* * *

The program for the **Northern California Rheumatism Association** meeting, which is to be held Friday, February 17, at Letterman Army Hospital, San Francisco, is as follows:

Morning Session: 9:30 a.m. to noon.

1. Welcoming Address: Major General Paul I. Robinson, M.C., U.S.A.

2. Unusual Sites of Rheumatoid Arthritis: Walter J. Treaner, M.D., and Lt. Col. Raoul Psaki, M.C., U.S.A.

3. Recent Studies in the Effects of the Newer Corticoids on Gastric Secretion: John V. Carbone, M.D., Daniel Liebowitz, M.D., Peter H. Frosham, M.D., and Valda Crevling, B.S.

4. The Hormonal Treatment of Lupus Erythematosus Disseminata: John Elliott, M.D.

5. Ultrasonic Therapy: Malvern Dorinson, M.D.

6. Paper Electrophoresis: Emmett Durrum, M.D.

Afternoon Session: 2:00 - 5:00 p.m.

1. Clinical Pathological Conference.

2. Presentation and Discussion of Cases Involving General and Special Problems in Various Rheumatic Diseases.

* * *

Dr. Harry Eagle, Chief, Experimental Therapeutics, National Microbiological Institute, has accepted an invitation by the Stanford University School of Medicine to deliver the

Doctor Morris Herzstein Course of Medical Lectures in San Francisco. March 12, 14 and 15, 1956. The titles are: I and II. Specific Growth Requirements, Metabolic Activities, and Nutritional Deficiencies of Normal and Malignant Cells in Tissue Culture.

III. The Nutritional Requirements for the Propagation of Poliomyelitis Virus: and Observations on the Use of Tissue Culture for the Screening of Carcinolytic Agents.

SANTA CLARA

The annual regional meeting of the Southern California Division and the Northern California Chapter of the United States Section of the **International College of Surgeons** will be held at the St. Claire Hotel, San Jose, March 22 and 23, 1956. Members and families of the medical and allied professions are cordially invited to attend. Communications should be addressed to Dr. Carmelo C. Celestre, secretary, Northern California Chapter, 1686 Union Street, San Francisco 23, or to Dr. Ross V. Parks, secretary, Southern California Division, 1930 Wilshire Boulevard, Los Angeles 57.

* * *

Dr. Eugene R. Perez is the new president of the **San Jose Surgical Society**, succeeding Dr. Gabe C. Long. Other officers for the current year are Dr. Glen S. Harman, president-elect; Dr. Ralph S. Purdy, secretary, and Dr. Frederic J. Snyder, treasurer. Councilors for 1956 are Drs. Lester J. Johnson, Clayton E. Brock and Frederick L. Eagleston.

GENERAL

Dr. Edward Lee Russell, health officer of Orange County, was elected president of the **California Conference of Local Health Officers** at the organization's meeting in December. He succeeds Dr. Harold Chope, San Mateo County health officer. Dr. Ellis D. Sox, San Francisco City and County health officer, was elected vice-president, and Dr. Merle Cosand, health officer of San Bernardino County, was elected secretary.

* * *

The place and time of the ninth annual meeting of the **American Association of Blood Banks**, previously scheduled for Cincinnati, November 4-7, 1956, have been changed. The meeting will be held September 3, 4 and 5, 1956, at the Somerset Hotel in Boston, Massachusetts.

Inquiries should be directed to Miss Marjorie Saunders, secretary, 725 Doctors Building, 3707 Gaston Avenue, Dallas, Texas.

* * *

Announcement that applications now are being received for the **Earl D. Osborn Fellowship in Dermal Pathology**, sponsored by the American Academy of Dermatology and Syphilology was made recently by the Academy. The fellowship is to provide annually the opportunity for study and training in dermal pathology to a postgraduate student who has completed satisfactorily at least one year or preferably two years of training in dermatology. The stipend is \$4,000 a year, divided into four quarterly payments during the year's fellowship. The period of training will be spent at the Armed Forces Institute of Pathology, Washington, D. C. Dermatologists in training may obtain further information and application blanks from Dr. Hamilton Montgomery, chairman of the Committee on Pathology of the American Academy of Dermatology and Syphilology, 200 First Street Southwest, Rochester, Minnesota. The next available appointment begins July 1, 1957.

POSTGRADUATE EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education assemblies and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Assistant Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

In Los Angeles:

Problems of Sterility, February 23-March 22. Fee: \$40.00.

Surgical Anatomy of Abdomen, Thorax, April 24-May 29. Fifteen hours. Fee: \$125.00.

Surgery of Trauma, March 29-30.*

Dermatology, 1956, June 22-23.*

Laboratory Technician Symposium, June 23-24.*

In San Diego:

Problems of Sterility, February 22-March 21. Fee: \$40.00.

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Conference on Poliomyelitis, February 23, 24, 25. Fee: \$45.00.

Course for General Practitioners, March 5 to 9. Fee: \$65.00.

Bedside Cardiology, March 19 to 23. Limited Enrollment. Fee: \$100.00.

Clinical Electrocardiography, March 19 to 23. Fee: \$50.00.

Ophthalmological Conference on Glaucoma, March 22-23. Twelve hours. Fee: \$50.00.

Symposium on Proctology, April 7.*

Office Urology, April 8.*

Plastic Surgery, May 18.*

Peripheral Vascular Surgery, May 19.*

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrorse 4-3600, Ext. 665.

*Fees to be announced.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Surgical Planing. Begins in March. Twelve hours. Fee: \$25.00.

Physics of Clinical Applications of Radioactive Isotopes. Twenty-four hours. February 10-June 22. Fee: \$50.00.

Anesthesia. Full time for three months. Opening every three months. Fee: \$300.00.

Contact: Phil R. Manning M.D., Director of Medical Extension Education, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. Capital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

Anesthesiology. Daily, full-time, four months, beginning each four months. Fee: \$300.

Gynecology. Wednesdays, March 21 to May 23. Ten hours. Fee: \$30.00.

Operative Surgery. Wednesdays, March 21 to June 6. Thirty hours: Fee: \$200.00.

Thoracic Surgery. Wednesdays, April 18 to May 9. Eight hours. Fee: \$30.00.

Diseases and Injuries of Bones and Joints. Daily, July 2 to July 31. Full time. Fee: \$100.00.

Contact: Chairman, Section on Graduate and Postgraduate Medicine, College of Medical Evangelists, 1720 Brooklyn Ave., Los Angeles 33. ANgelus 9-9131, Ext. 205.

STANFORD UNIVERSITY

Monday Morning Clinical Conferences, Room 515.

Contact: D. H. Pischel, M.D., Professor, Division of Ophthalmology, Stanford University School of Medicine.

Postgraduate Conference in Otorhinolaryngology, March 26 to 30. Fee: \$100.00.

Postgraduate Conference in Ophthalmology, March 19 to 23. Fee: \$100.00.

Postgraduate Conference in Practical Pediatric Dermatology. March 23-24. Fee: \$50.00.

Contact: Office of the Dean, Stanford University School of Medicine, 2398 Sacramento Street, San Francisco 15. WEst 1-8000.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE INSTITUTES

WEST COAST COUNTIES in association with College of Medical Evangelists, March 1-2, Golden Bough Theater and La Playa Hotel, Carmel.

NORTH COAST COUNTIES in association with University of California School of Medicine, San Francisco, April 5 and 6, Veterans Memorial Auditorium, Santa Rosa.

SAN JOAQUIN VALLEY COUNTIES in association with the University of California School of Medicine, Los Angeles, May 10 and 11, Hacienda, Fresno.

SACRAMENTO VALLEY COUNTIES in association with Stanford University School of Medicine, June 20, 21, 22, Cal-Neva Lodge, Lake Tahoe.

Contact: C. A. Broadus, M.D., Director of Postgraduate Activities, P.O. Box A-1, Carmel, California, or Mrs. Margaret H. Griffith, Assistant Director, Postgraduate Activities, California Medical Association, 417 So. Hill St., Los Angeles 13.

Medical Dates Bulletin

FEBRUARY MEETINGS

MIDWINTER X-RAY CONFERENCE sponsored by Los Angeles Radiology Society, Biltmore Hotel, Los Angeles, February 25 and 26.

Contact: Robert B. Engle, M.D., program chairman, St. Luke's Hospital, Pasadena 8.

UNIVERSITY OF CALIFORNIA SPROUL ANNIVERSARY CELEBRATION SYMPOSIUM, "The University and the Medical Sciences." Monday and Tuesday evenings, February 27 and 28, Morrison Auditorium in Golden Gate Park, San Francisco. All physicians cordially invited to attend.

Contact: Seymour M. Farber, M.D., chairman, at Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrorse 4-3600, Ext. 665.

MARCH MEETINGS

LAENNEC SOCIETY scientific and dinner meeting each fourth Friday, 6:30 p.m., Alexander Hamilton Hotel, San Francisco. For all physicians interested in Chest Diseases.

Contact: E. P. Von Allmen, secretary-treasurer.

COLLEGE OF MEDICAL EVANGELISTS ALUMNI POSTGRADUATE CONVENTION. Refresher courses, March 4 and 5, White Memorial Hospital, Los Angeles. Scientific Assembly, March 6 to 8, Biltmore Hotel, Los Angeles.

Contact: Walter B. Crawford, managing director, College of Medical Evangelists, Loma Linda.

REGIONAL CONFERENCE ON PHYSICIANS AND SCHOOLS, March 9-10. Convention Hall, Balboa Park, San Diego. Presented by California Medical Association in cooperation with San Bernardino, Orange, Riverside, San Diego and Inyo-Mono County Medical Societies.

Contact: Robert L. Thomas, assistant executive secretary, California Medical Association, 450 Sutter Street, San Francisco.

CANCER COMMISSION, California Medical Association, Cancer Conference for Yolo County Medical Society. March 7, 6:30 p.m., Woodland.†

CANCER COMMISSION, California Medical Association, Cancer Conference for San Diego County Medical Society. March 13, 5:30 p.m., U. S. Naval Hospital, San Diego.†

CANCER COMMISSION, California Medical Association, Cancer Conference for Kern County Medical Society. March 20, 3:00 p.m., Bakersfield.†

MEDICAL ALUMNI COMMITTEE OF CHILDREN'S HOSPITAL, San Francisco, March 17.* Morning: Dermatology. Afternoon: Nutritional problems peculiar to modern pediatrics.

SOUTHWESTERN PEDIATRIC SOCIETY spring meeting, March 20-21, Statler Hotel, Los Angeles.

Contact: Wendell M. Redfern, M.D., 125 East Glenoaks Blvd., Glendale 7, or Harry O. Ryan, M.D., 149 North El Molino, Pasadena 4.

*For registration or information, contact: Gertrude Jones, M.D., Children's Hospital, San Francisco.

†Contact: Walter E. Batchelder, M.D., Medical Director, Cancer Commission, 467 O'Farrell Street, San Francisco.

APRIL MEETINGS

CALIFORNIA TUBERCULOSIS AND HEALTH ASSOCIATION, California Trudeau Society and California Sanatorium Association Annual Meeting, Sheraton-Palace Hotel, San Francisco, April 5, 6, 7.

Contact: E. L. Daggett, director, Public Relations, California Tuberculosis and Health Association, 130 Hayes Street, San Francisco 2.

CANCER COMMISSION, California Medical Association, Cancer Conference for Fresno County Medical Society. April 10, 7:00 p.m., Sunnyside Country Club, Fresno.†

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION, 14th annual meeting, Calexico (California) and Mexicali (Baja California), April 13 to 16.

Contact: Sidney B. Clark, M.D., secretary, 204 U. S. Court House, El Paso, Texas, or Donald G. Davy, M.D., assistant chief, Division of Local Health Service, 2151 Berkeley Way, Berkeley 4.

MEDICAL ALUMNI COMMITTEE OF CHILDREN'S HOSPITAL, San Francisco, April 14.* Behavior Problems and Childhood Psychiatry.

AMERICAN COLLEGE OF PHYSICIANS 37TH ANNUAL SESSION, Los Angeles, April 16-20.

Contact: George C. Griffith, M.D., General Chairman, Box 25, 1200 N. State St., Los Angeles 33.

CANCER COMMISSION, California Medical Association Cancer Conference for San Luis Obispo County Medical Society, April 21, 6:30 p.m. Dinner, San Luis Obispo.†

VALLEY CHILDREN'S HOSPITAL ANNUAL SPRING CLINICS, April 27 and 28, 9 a.m., Roosevelt High School Auditorium, Fresno.

WESTERN INDUSTRIAL MEDICAL ASSOCIATION annual meeting, all day, April 28, Ambassador Hotel, Los Angeles.

Contact: Edward Zaik, M.D., secretary, 740 South Olive Street, Los Angeles 14.

HAWAII MEDICAL ASSOCIATION Centennial Celebration. Scientific sessions, historical pageant of 100 years of medicine in Hawaii, social festivities, etc., Honolulu, April 22 to 29.

Contact: Hawaii Medical Association, 510 S. Beretania Street, Honolulu 13, Hawaii.

CALIFORNIA MEDICAL ASSOCIATION ANNUAL MEETING, celebrating 100th Anniversary, Ambassador Hotel, Los Angeles, April 29 to May 2.

Contact: John Hunton, Executive Secretary, 450 Sutter St., San Francisco 8, or Ed Clancy, Director of Public Relations, 417 S. Hill St., Los Angeles 13.

MAY MEETINGS

NEW MEXICO MEDICAL SOCIETY annual session, Roswell, New Mexico, May 2 to 4.

Contact: Ralph R. Marshall, executive secretary, 223-24 First National Bank, Albuquerque, N. M.

CALIFORNIA HEART ASSOCIATION ANNUAL MEETING AND SCIENTIFIC SESSION, La Playa Hotel, Carmel, May 18 to 20.

Contact: Alan Croft Blanchard, field director, California Heart Association, 1428 Bush Street, San Francisco 9.

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION Annual Meeting, Salt Lake City, Utah, May 30 to June 2.

Contact: Mrs. L. Amy Darter, secretary-treasurer, at State Public Health, 2151 Berkeley Way, Berkeley 4, California.

SUMMER AND FALL MEETINGS

IDAHO STATE MEDICAL ASSOCIATION annual meeting, June 17-20, Sun Valley, Idaho.

Contact: Armand L. Bird, executive secretary, Idaho State Medical Association, 364 Sonna Building, Boise, Idaho.

COLORADO DIVISION OF THE AMERICAN CANCER SOCIETY 10th annual Rocky Mountain Cancer Conference, Shirley-Savoy Hotel, Denver, Colorado, July 11 and 12.

Contact: John S. Bouslog, M.D., 835 Republic Building, Denver 2, Colorado.

SAN DIEGO COUNTY GENERAL HOSPITAL TENTH ANNUAL POSTGRADUATE ASSEMBLY, September 19-20.

Contact: Howard B. Kirtland, Sr., M.D., Chairman, Postgraduate Committee, 3505 Fourth Avenue, San Diego 3.

CALIFORNIA SOCIETY OF INTERNAL MEDICINE ANNUAL MEETING, September 29, La Playa Hotel, Carmel.

Contact: Mrs. Mildred B. Coleman, Assistant Secretary, Room 515, 384 Post Street, San Francisco 8.





THE PHYSICIAN'S *Bookshelf*

CANCER CELLS—E. V. Cowdry, Director, Wernse Cancer Research Laboratory, Washington University, St. Louis, formerly President, American Association for Cancer Research. W. B. Saunders Company, Philadelphia, 1955. 677 pages, 137 figures, \$16.00.

Dr. Cowdry is a nonmedical scientist who has been a prominent figure in cancer research for many years. Originally an anatomist, his interests subsequently turned to microanatomy (Textbook of Histology), intracellular morphologic and chemical differences between normal and cancer cells, geriatrics (Problems of Aging), and organizational contributions to the International Union against Cancer and the American Association for Cancer Research, in both of which he has held the highest office.

With this sort of background, it is not surprising that "Cancer Cells" offers admirable discussion of such subjects as the cytoplasm of normal and "malignant" cells, nuclear differences, mutations and the controversy over viruses as cancer agents. There is also valuable reference material on heredity, geographic frequency and physical and chemical carcinogens.

For physicians this book would seem to have little appeal and even less of real value. To quote from the author's preface: "In many chapters I am open to criticism for straying from an account strictly limited to cancer cells . . . This book is moreover uneven chiefly because my training is uneven and especially inadequate in clinical medicine, physics and chemistry." The validity of this self criticism is apparent in the annoyingly discursive fashion employed in any approach to the natural history of cancer, while the sections dealing with such clinical subjects as prevention, diagnosis and treatment contain abundant evidence that both the philosophy and practice of medicine is the province of doctors of medicine, rather than of distinguished nonclinical scientists.

It is surprising to find in these pages an adherence to the evangelistic propaganda of a decade or more ago. In the section on treatment, it is said that "each of the over 200,000 persons dying annually is an emergency." This reviewer also thinks it is naive to suggest that "the greatest step in the prevention of cancer would be removal of the psychological block against consulting physicians."

A chapter entitled (rather ungrammatically) "Single Trauma Cancers" bestows unmerited recognition on minor traumata as causative factors. Forty-two instances of squamous or basal cell carcinoma, all but one of the lip, face or dorsum of hand, ages from 40 to 87, are listed, and all alleged various cuts, burns or blows at intervals of 5 weeks to 14 years prior to diagnosis! These case reports are from the Barnard Free Skin and Cancer Hospital; one wonders what percentage of the total lip and cutaneous cancers these 42 constitute, and what percentage of a similar, control sample of the population in St. Louis would have suffered comparable trauma. Further violence to reason is committed by closing the chapter with quotations from judicial opinions; some years ago Dr. Fred Stewart remarked that if trauma

caused cancer, expert medical witnesses should develop gliomas!

The format, printing and binding are handsomely done. There is an extensive, well chosen bibliography relating to basic cancer research.

* * *

HANDBOOK OF PEDIATRICS. Henry K. Silver, M.D., Associate Professor of Pediatrics, Yale University School of Medicine; C. Henry Kempe, M.D., Assistant Professor of Pediatrics, U. C. School of Medicine, and Henry B. Bruyn, M.D., Assistant Professor of Pediatrics and Medicine, U. C. School of Medicine and Assistant Clinical Professor of Pediatrics, Stanford University Medical School. Lange Medical Publications, Los Altos, 1955. 548 pages, \$3.00.

This handbook is intended to supplement rather than replace the standard pediatric texts. As such, it does an excellent job. It should prove useful to the medical student, general practitioner and pediatrician. In condensed and semi-outline form, it contains up-to-date essentials for the diagnosis and management of most pediatric situations encountered in the home, the office or the hospital. Immunological tests, normal growth and developmental data, mental health principles, laboratory tests and treatment procedures are well represented.

The book is small and compact enough to fit into a doctor's bag. The information it contains would appear to warrant a place there in the case of physicians caring for children.

* * *

SHOULD THE PATIENT KNOW THE TRUTH?—A Response of Physicians, Nurses, Clergymen and Lawyers— Edited by Samuel Standard, M.D., and Helmuth Nathan, M.D., Springer Publishing Company, Inc., 44 East 23rd Street, New York 10, N. Y., 1955. 160 pages, \$3.00 hard cover, and \$2.00 soft cover.

No one should expect to find in this book a definite, positive answer to the question "Should the Patient Know the Truth?" Almost every conceivable part of this question has been discussed from some viewpoint. What is truth? How much of it can or should be told? What the patient deserves and expects are all given answers of one kind or another.

The difficult role of the nurse or those who attend the patient during the time he is ill and away from his doctor is well presented by several thoughtful and penetrating chapters written by qualified nurses.

The religious aspects of this problem are adequately delineated by a priest, rabbi and protestant minister.

While the patient's viewpoint is expressed by a physician patient the book would be more complete if several non-professional patients had been invited to write chapters. In striving for completeness there is much repetition.

Several quotations from literature summarize the general tone throughout most of the book.

"The idea that the truth, the whole truth and nothing but the truth can be conveyed to the patient is an example of

false fabrication, or that fallacy called by Whitehead "the fallacy of misplaced concreteness." Another fallacy is involved, "the belief that it is not too difficult to know the truth."

Another precept which has always guided the best physicians, "So far as possible do no harm." "You can do harm by the process that is quaintly called telling the truth. You can do harm by lying." "The doctor is never privileged to lie to the patient, but he is privileged to tell the patient part of the truth."

Even though this series of essays and opinions does not give a final answer to the question, it does give much help in telling how much or how little of the truth should be told. The most valuable parts of the book are those written by nurses, religious leaders and psychiatrists. They seem to point the way toward a more cooperative effort on the part of all concerned.

* * *

THE YEAR BOOK OF OBSTETRICS AND GYNECOLOGY—1955-1956. J. P. Greenhill, M.D., Editor, Professor of Gynecology, Cook County Graduate School of Medicine, The Year Book Publishers, Inc., 200 East Illinois Street, Chicago, 1955. 544 pages, \$6.00.

This book is the annual compendium of selected abstracts in obstetrics and gynecology issued by the publisher. It covers primarily the important contributions in the American and British literature for the months indicated, together with comments on the subject by the editor. One criticism that may be fairly leveled at this and prior volumes is that the editor really offers no critical evaluation of the various articles and no true critique of the studies presented. Thus, the book becomes merely a repository of abstracts, and a reviewer may rightly wonder for what purpose the editorial comments exist other than to give one man's viewpoint upon the subjects under discussion. However, as a reference handbook for some of the publications upon a given problem, the book serves its purpose well. It may be recommended to the busy general practitioner and specialist interested in current contributions in this field.

* * *

STEREOSCOPIC ATLAS OF HUMAN ANATOMY—David L. Bassett, M.D., Associate Professor of Anatomy, Stanford University School of Medicine. Published by Sawyers, Inc., Portland, Oregon.

Section I—Central Nervous System—238 stereoscopic views in true color, mounted on 34 View-Master reels with 4 compact volumes of more than 400 pages of descriptive text and diagrams. Published in 1952, \$27.50.

Section II—Head and Neck—350 full color, three-dimensional views of the head and neck on 50 View-Master reels, with 5 compact volumes of more than 700 pages of descriptive text and diagrams. Published in 1954, \$38.50.

After more than ten years of work the first two sections of David L. Bassett's "Stereoscopic Atlas of Anatomy" are now available. It can be highly recommended to students, teachers and practitioners as a superb pictorial survey of human anatomy. It is beautifully done in three dimensional colored photographs and one achieves by inspecting the stereoscopic plates a pleasing review of anatomy.

For students who are in the process of learning anatomy, this would be an ideal way in which to review and consolidate the material in their minds. For the practicing surgeon and physician it gives him essentially the information he wants anatomically without the necessity of doing any large amount of reading. One can review a single dissection, a series of steps in a carefully planned sequence of dissections or an entire area in full perspective and in natural colors comparable to those in real life. A fully labeled sketch based upon a tracing of the original photograph accompanies each plate and furnishes a topographic guide for each view. The

views themselves are clear and unmarred, exceptionally fine photographic reproduction exists in every plate. The set is compact and the reviews are readily accessible. Regrouping of the views can be accomplished with ease and one can study any part of anatomy he desires that is included in the two sections so far published.

There is a pertinent text to accompany the reels but the labeling of the illustrations is very clear and only the pertinent information is given.

This is a new and magnificent way to present anatomy to both student and physician, alike. The only possible objection to this work would be its cost, but considering the excellence of the material and the amount of material presented, one can hardly object to that at the present time.

We will look forward to subsequent sections of this book to round out a beautiful, complete stereoscopic atlas of human anatomy.

* * *

PROGRESS IN NEUROLOGY AND PSYCHIATRY—An Annual Review—Volume X, 1955. Edited by E. A. Spiegel, M.D., Professor and Head of the Department of Experimental Neurology, Temple University School of Medicine, Philadelphia. Grune and Stratton, New York, 1955. 645 pages, \$10.00.

This annually useful volume has about the same distribution of space devoted to Neurology, Neurosurgery, and Psychiatry as in the past. The coverage is complete; as a matter of fact it is a continuing matter of amazement that so much work is done in these fields each year and so little progress is made in the therapeutic sense. It is almost more than the specialist can do to keep abreast of the work, let alone the general practitioner. This book is directed at the specialist, but the style of most of the contributions is such that it is understandable by any physician. As a reference work on recent advances in the field it is a useful contribution.

* * *

CARDIAC DIAGNOSIS—A Physiologic Approach—Robert F. Rushmer, M.D., Associate Professor of Physiology and Biophysics, University of Washington Medical School. W. B. Saunders Company, Philadelphia, 1955. 447 pages, \$11.00.

This is an excellent book written by a competent investigator who is well known for his studies on fundamental problems of cardiac physiology. The book contains many unusual and valuable features. Although its title is "Cardiac Diagnosis," the book is chiefly concerned with the application of recent advances in cardiovascular physiology to our understanding of clinical heart disease.

The writing is clear, concise and simple. The illustrations, designed by the author, are superb. By studying the illustrations alone, much of the subject matter is clearly brought out, even when dealing with complex topics. The best portions of the book are the chapters on function and regulation of the cardiovascular system. The etiology of congestive failure is especially well presented. The author rightfully hopes for an early end to the controversy between the proponents of the "backward failure" theory and the "forward failure" theory since both contain many elements of truth and neither can fully explain heart failure.

A few minor criticisms may be made. For example, quotations are not always absolutely accurate. In discussing myocardial infarction, the author describes a zone of ischemia, a zone of injury and a zone of infarction all three occurring simultaneously. Although most writers have in the past discussed myocardial infarcts in these terms, the fact is that such three zones rarely, if ever, occur simultaneously in the same subject, either in man or in the experimental animal. The author also seems to persist in the old idea that the

endocardial myocardium remains intact after myocardial infarction. While this kind of pathological picture helps to explain classic electrocardiographic theory, it is actually very rarely observed by pathologists.

If any serious criticism can be offered, it is that the book is certainly not primarily a text of Cardiac Diagnosis. But as a work on cardiovascular physiology it is probably unsurpassed. It shows the results of profound and prolonged thinking by a thoroughly competent and skilled investigator. It can be read profitably and with pleasure by anyone interested in basic problems of cardiovascular disease. Hence it is recommended to all cardiologists, internists, physiologists and pharmacologists as a modern and authoritative text.

* * *

COUNSELING IN MEDICAL GENETICS—Sheldon C. Reed, Director of Dight Institute for Human Genetics, The University of Minnesota. W. B. Saunders Company, Philadelphia, 1955. 268 pages, \$4.00.

As marriage and family advisors, physicians are frequently consulted about genetic problems, especially those concerning the chances that a given mating will or will not result in abnormal offspring. Obstetricians, pediatricians and general practitioners are particularly apt to be asked for such advice either in advance of marriage or, more often, after a child has been born with organic defects. So important has this aspect of medical practice become that clinics for genetic counseling are being set up in increasing numbers. It is from one of these, the Dight Institute for Human Genetics, that the present slender volume originates, written by its Director, Dr. Reed.

After discussing the functions of counseling service, and briefly reviewing "a few laws" of heredity the author outlines the twenty commonest problems in separate chapters with emphasis on the statistics of each condition including the incidence in fraternal and identical twins when available, on dominance or recessiveness and the resulting probability of its occurrence or recurrence, closing with one or more illustrative case histories and the advice given. There are also provocative chapters entitled "The Ubiquitous Heterozygote" and "Don't Marry a Relative!"

Among the subjects discussed are: Mongolism; nervous system disorders; clubfoot; harelip and cleft palate; mental retardation; pyloric stenosis; fibrocystic disease of the pancreas; blood genetics; disputed paternity; skin color; convulsive seizures; allergies; schizophrenia; manic-depressive psychosis.

The book is admittedly illustrative and eclectic, and is neither profound nor exhaustive, designed to show the general methods of approach and solution of practical problems for which advice is sought, rather than to cover all of them. Unless this is understood, certain omissions are decidedly surprising. For instance, the chapter on Blood Genetics confines itself to Rh and ABO disorders and fails to mention other important ones such as hemophilia, spherocytosis, thalassemia and sickle cell anemia.

Practitioners whose advice is likely to be asked about hereditary problems of heredity will find this a handy and useful book. There is a bibliography which will enable him to look farther if he needs to do so, and a good index.

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FOR YOUR CONVENIENCE in making hotel reservations for the coming meeting of the **California Medical Association**, April 29-May 2, 1956, Los Angeles, hotels and their rates are at the right. Use the form at the bottom of this page, indicating your first and second choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. **All requests for reservations must give definite date and hour of arrival as well as definite date and approximate hour of departure; also names and addresses of all occupants of hotel rooms must be included.**

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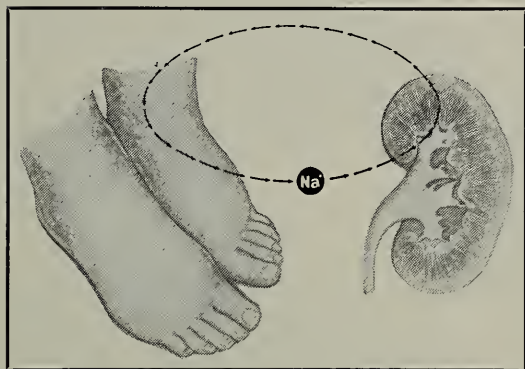
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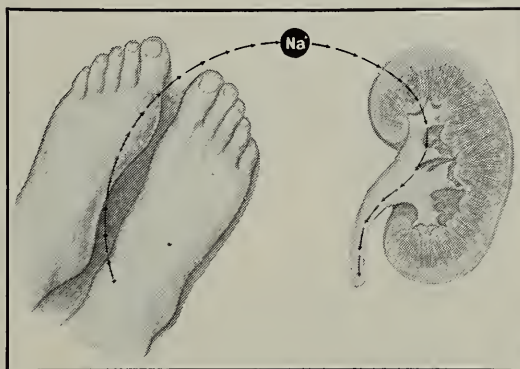
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The maintenance dosage of Mictine, as well as for initial diuresis in mild or moderate congestive heart failure, is one to four 200-mg. tablets daily in divided doses; the dosage for initial diuresis in severe congestive failure, under the conditions already described, is four to six tablets daily. For either use, it is recommended that Mictine be prescribed with meals on interrupted dosage schedules; that is, prescribing Mictine on alternate days or for three consecutive days and omitting it the next four days.

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Committee Outlines Program For Poison Control

The American Medical Association's Committee on Toxicology recently outlined four methods for combating the perennial problem of accidental childhood poisonings.

The methods include education, more stringent laws, establishment of poison centers, and greater efforts by local physicians. They were discussed in a report prepared for the committee by Dr. Jay M. Arena, Durham, N. C., and published in a recent issue of the *Journal of the American Medical Association*.

Bernard E. Conley, secretary of the committee, said ". . . the curiosity of children coupled with the casualness with which many parents handle and store drugs and chemicals are predisposing factors to most unintentional poisonings."

The "alarming feature" of the problem is the regularity with which various household agents and drugs are swallowed by children, the report said. Leading causes are drugs, especially aspirin and barbiturates, petroleum products, lead, corrosive agents such as lye, and arsenic.

Of approximately 14,000 accidental deaths that occur each year among children from one to 14 years, almost 1,500 are reported as being caused by accidental poisoning, but this figure is "far from correct" for many cases are never recorded, the report said.

Childhood deaths from poisoning occur disproportionately often in 12 southern states—Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North and South Carolina, Oklahoma, Tennessee, Texas, and Virginia, the report said.

For the barbiturates and aspirin there is little regional difference, but for corrosives and arsenic the rate in these southern states is six times that for the rest of the country. The rate for petroleum products, principally kerosene, is four times as high.

"Quite apparent to everyone" is the need for educating laymen and parents to the dangers of household agents, but many physicians also are unaware and must be educated, the report said. Manufacturers must be made aware of the seriousness of the problem and of their responsibilities. They should consider the use of distinctive safety containers and better labeling with warning statements and when necessary uniformly standardized doses for drugs.

While the present federal laws are useful as far as they go, they are far from adequate, the report said. Laws regulating the sale of household articles not now covered by existing laws must be considered. Physicians and lay groups should work for state laws to strengthen federal ones and to bring about correction of their special state problems.

(Continued on Page 64)

There are few subjects on which the general public is more uninformed (or perhaps *misinformed*) than the cost of modern medical care.

People have always grumbled about medical bills—and they probably always will, to some extent. The trouble is they tend to see medical expense as a part of sickness—something that certainly gives them no pleasure—rather than the price of enjoying good health.

But the real economics of the situation—what the patient gets for what he pays—proves that today's medical bill usually turns out to be one of the really big bargains of his life.

The latest Parke-Davis advertisement, reproduced here, cites the amazing decline in the cost of curing pneumonia to illustrate the remarkable value represented by your patient's investment in prompt and proper medical care.

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Chemical Poisoning Treatment Outlined

(Continued from Front Advertising Section, Page 50)

The best known methods of treatment include the administration of the drug atropine sulfate to control nervous system effects; artificial respiration to treat respiratory failure, and general treatment for other symptoms.

In a review of literature on the subject, they found that atropine must be given as soon as possible and in larger than normal doses in order to combat the poisoning. The review of 25 cases showed a direct relationship between survival, the amount of atropine given, and the speed of administration, they said.

While an overdosage of atropine produces certain uncomfortable effects, they are not serious, but the consequences of inadequate treatment for organic phosphate poisoning are grave, they said. Therefore, treatment with atropine should tend toward overdosage, they said.

The effects of the organic phosphates are prolonged and treatment must be continued "vigilantly" until all signs of poisoning are gone. Severe exposure or delayed therapy may result in death.

Other methods of treatment include: Application of gas mask and/or removal from the site of the vapors; immediate washing away of any liquid contamination; drainage of excessive bronchial secretions that may block the airway; oxygen administration if necessary; treatment of the eyes with atropine to counteract eye symptoms, and administration of medicine to stop convulsions if they are not controlled by atropine.

The study by Archer S. Gordon, M.D., Ph.D., and Charles W. Frye, M.S., Chicago, of the department of clinical science, College of Medicine, University of Illinois, was supported by a grant from the Army Chemical Center Medical Laboratories, Edgewood, Maryland.



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Vitamin B ₁	10 mg.
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Recommended to help stimulate appetite in under-nourished or underweight children or adults, or during convalescence, and as an aid in overcoming deficiencies of the vitamins.

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Committee Outlines Program For Poison Control

(Continued from Page 56)

The report suggested that the sale of kerosene be restricted except in a special type of container, which would also carry a label warning of its poisonousness and inflammability.

Poison centers should be set up to collect and distribute information on the type, frequency, treatment, and preventive measures for poisonings.

Another step forward would be a concentrated effort by every physician to educate parents to the hazards of household agents. This could be done by

pointing out corrective measures while making house calls, distributing safety literature to mothers, using bulletin board displays in the office, encouraging community programs to study the problem, and giving information to radio stations, newspapers, and magazines.

Much can be accomplished by asking pharmacists to put labels such as "Keep out of the hands of children" on all dangerous drugs and agents, the report said.

Dr. Arena is associate professor of pediatrics at Duke University and director of the Poison Control Center of Durham.

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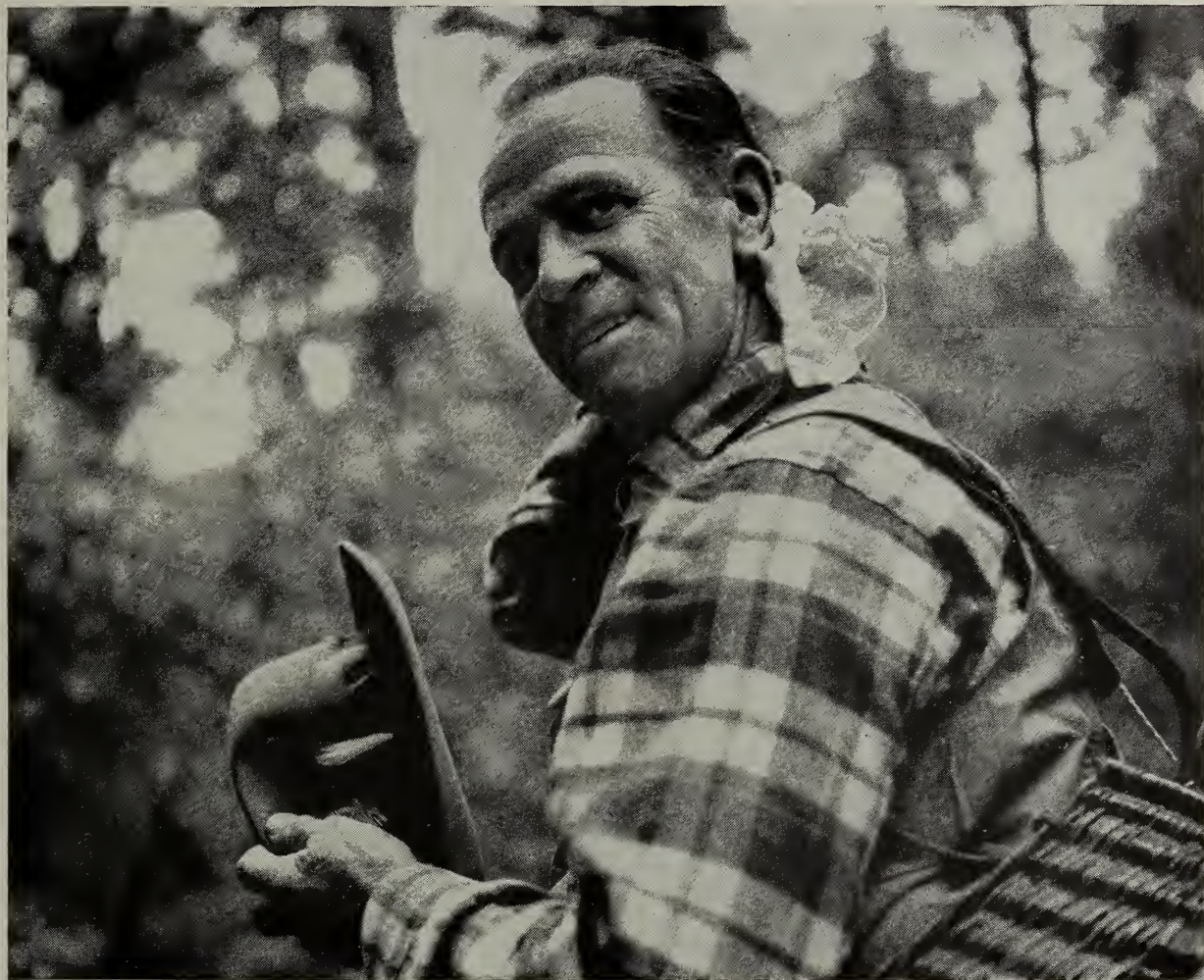
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Zinc (as ZnO).....	0.5 mg.

Other Lederle geriatric products include: GEVRABON* Vitamin-Mineral Supplement Liquid with a wine flavor; GEVRAL* Protein Vitamin-Mineral-Protein Supplement Powder; and GEVRINE* Vitamin-Mineral-Hormone Capsules.

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LEDERLE LABORATORIES DIVISION AMERICAN *Cyanamid* COMPANY PEARL RIVER, NEW YORK

*REG. U.S. PAT. OFF.

Low-Salt Diet May Help Disease of Liver

A low-salt diet may help some persons with cirrhosis of the liver return to a more normal life, provided they are willing to cooperate and no other complications arise.

Dr. Charles S. Davidson, Boston, studied 30 patients with cirrhosis of the liver, a disease frequently associated with chronic alcoholism. Moderate or severe undernutrition is "characteristically associated" with the disease, and retention of fluid in the abdominal cavity usually accompanies the disease in its severe state.

A low-salt diet controlled fluid retention and improved nutrition in more than half of the 30 patients, of whom 28 were alcoholics. The diet also produced apparent improvement in liver function and apparent lowering of portal hypertension, a disorder of blood pressure in the veins leading into the liver.

However, Dr. Davidson pointed out that although these improvements occur, a patient's progress may be limited by the problems of chronic alcoholism and physical complications of cirrhosis, such as hepatic coma, which may result in death.

Twelve of his patients failed to improve because they refused to cooperate, returned to alcoholism, or died, he said.

Of the 18 who did improve, four returned to alcoholism, five died of various causes, and one developed a psychosis of unknown cause. Thus only six remain well.

Four of the patients lost the fluid within two months after beginning the diet, while 14 lost it over a period of three to 16 months. During those months they usually showed "a striking improvement" in nutritional status, and experienced increased feelings of well-being and improved appetite, Dr. Davidson said.

Portal hypertension seemed to decrease, which suggests that the low-salt diet might be considered as an alternative to surgery for treatment of portal hypertension in certain cases, he said.

Dr. Davidson, of the Thorndike Memorial Laboratory, Boston City Hospital, and Department of Medicine, Harvard Medical School, reported his findings in a recent issue of the *Journal of the American Medical Association*.

The work was done under the sponsorship of the Commission on Liver Disease of the Armed Forces Epidemiological Board, and was supported in part by the Office of the Surgeon General, Department of the Army, and by grants from Merck & Co., Inc., Rahway, New Jersey, and Lederle Laboratories, Pearl River, New York.

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is quality you trust**





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GALEN "B"®—each fluid ounce contains not less than: Thiamine 4.5 mg.; Riboflavin 4.5 mg.; Niacin and niacinamide 60.0 mg.; Pyridoxine 4.5 mg.; Pantothenic acid 12.0 mg.; Inositol 225.0 mg.; Choline 300.0 mg.; Biotin 0.03 mg., plus all other factors of the B complex group natural to rice bran.

ELIXIR GALEN "B"® FORTIFIED—each fluid ounce contains not less than: Thiamine 10.0 mg.; Riboflavin 5.0 mg.; Niacin and niacinamide 60.0 mg.; Pyridoxine 4.5 mg.; Pantothenic acid 12.0 mg.; Inositol 112.0 mg.; Choline 150.0 mg.; Biotin 0.015 mg.; Iron (as iron and ammonium citrate) 32.0 mg.; Manganese (as manganese citrate) 16.0 mg., plus all other factors of the B complex group natural to rice bran.

GALEN® MULTIVITAMIN TABLETS—two tablets contain: Vitamin A 5000 U.S.P. units; Vitamin D 800 U.S.P. units; Ascorbic acid 100 mg.; Thiamine 5 mg.; Riboflavin 4 mg.; Niacinamide 30 mg.; Pyridoxine 1 mg.; Calcium pantothenate 5 mg.; Vitamin E 2 mg.; Iron 15 mg.; Manganese 6 mg.; Iodine 0.1 mg.; Copper 1 mg.; Calcium 200 mg.; Phosphorus 150 mg.

Rare-Galen Division of White Laboratories, Inc., Kenilworth, N. J.

Tubeless Gastric Analysis Method Outlined

For some time physicians have been looking for a simple, accurate way of determining the lack of normal acidity in the stomach without making the patient swallow a tube for this diagnostic procedure.

Now two Chicago physicians have used successfully a method that requires no tube. They said in a recent issue of *Archives of Internal Medicine*, published by the American Medical Association, that the method is simple, accurate, and easily adaptable for office use and mass screening.

The presence or absence of hydrochloric acid in the stomach is of importance in diagnosing various gastric disorders, they said. The absence of the acid also is one of the signs of pernicious anemia.

The standard tube procedure is not performed with many patients for several reasons, including the reluctance of patients to swallow a tube, they said.

The doctors first gave the standard test to 84 patients. They then gave the new test, which consists of swallowing an organic dye, azure A ion-exchange compound, and water. Urine samples were taken one and two hours later. A color test of the urine indicated the presence or absence of acid.

Eighty-two of the 84 patients who had shown hydrochloric acid with the standard test were identified correctly by the new method. Twenty patients who were known to have no acid also were identified correctly by the new method, the physicians said.

Their experience with the dye method confirms earlier findings by other physicians that it is a satisfactory way of determining stomach acidity.

Making the study were Drs. John T. Galambos, a United States Public Health Service research fellow of the National Cancer Institute, and Joseph B. Kirsner, both of the department of medicine, University of Chicago.

Placebos May Produce Harmful Side Effects

Placebos, harmless substances given as substitutes for medicine, may produce beneficial effects like those of the real thing, but they also may cause harmful side effects, a Boston physician said recently.

A placebo is an inactive substance or preparation which is given under certain circumstances to please or pacify a patient. It also is used as a "dummy" for comparison with real medicine in certain investigations.

Dr. Henry K. Beecher surveyed 15 studies, involving more than 1,000 patients, in which placebos

(Continued on Page 76)



Flexible vitamin B₁₂ therapy for patients of all ages

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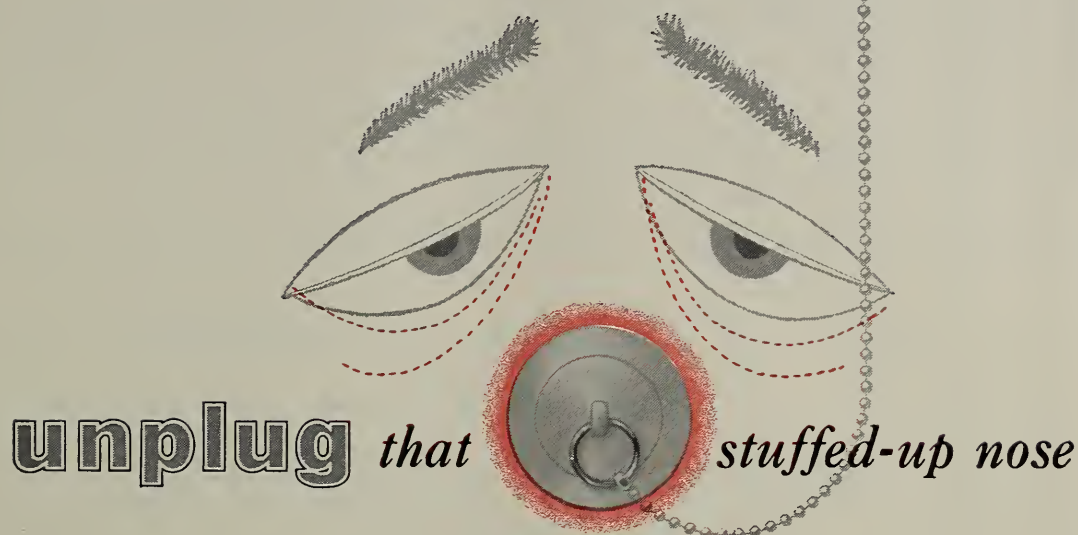
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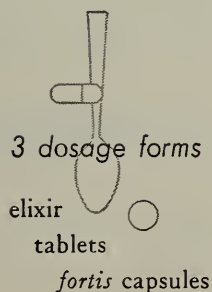


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Each Novahistine Tablet or teaspoonful of Elixir, provides 5.0 mg. of phenylephrine HCl and 12.5 mg. propenpyridamine maleate. Novahistine *Fortis* Capsules contain twice the amount of phenylephrine for those who need greater vasoconstriction.

PITMAN-MOORE COMPANY Division of Allied Laboratories, Inc., Indianapolis 6, Indiana

Placebos May Produce Harmful Side Effects

(Continued from Page 74)

were used. His report appeared in a recent issue of the *Journal of the American Medical Association*.

The placebos produced "real improvement" in a wide variety of difficulties including wound pain, pain of angina pectoris, headache, nausea, effects related to cough and to drug-induced mood changes, anxiety, tension, and the common cold—all ailments with strong subjective responses.

The placebos also produced such side effects as dry mouth, nausea, sensation of heaviness, headache, difficulty in concentrating, drowsiness, warm

glow, relaxation, fatigue, sleepiness, skin rash, and abdominal pain.

It is doubtful that the placebos, usually made of salt, starch, or lactose, chemically produced these effects, he said. Rather it appears that the physical change was associated with a psychological reaction to suffering.

Dr. Beecher said that the severer the disease state the greater is the effect of placebos, both in giving relief to pain and in producing side effects.

Decided improvement, interpreted as real therapeutic effect, occurred in approximately 35 per cent of the patients given placebos in each of the studies.

(Continued on Page 84)

1956 ANNUAL SESSION

April 29 - May 2, 1956

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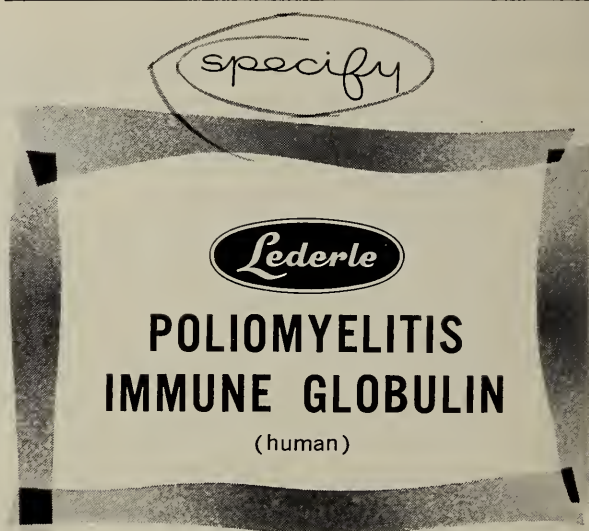
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C and K vitamins in the Stress Formula suggested by the National
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Each capsule contains:

AUREOMYCIN Chlortetracycline . . .	250 mg.	Pyridoxine (B ₆)	0.5 mg.
Ascorbic Acid (C)	75 mg.	Folic Acid	0.375 mg.
Thiamine Mononitrate (B ₁)	2.5 mg.	Calcium Pantothenate	5 mg.
Riboflavin (B ₂)	2.5 mg.	Vitamin K (Menadione)	0.5 mg.
Niacinamide	25 mg.	Vitamin B ₁₂	1 mcgm.

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Lederle

THE SOURCE
OF RE-INFECTION
CAN BE

THE HUSBAND

IN VAGINAL
TRICHOMONIASIS



THE available evidence indicates that one of every four or five adult women harbor the parasite.¹ In many cases coitus must be regarded as a method of transfer.²

Infests the male, too — "The infestation in males is probably more common than realized and will more frequently be recognized. . . ."³

Karnaky reports the infection in the urethra, in the prostate or under the prepuce of 38 among 150 husbands with infected wives.⁴

Symptoms often absent — In the female, trichomonas vaginitis is a well recognized condition . . . but in the infected males signs and symptoms are usually absent.² Or the infection causes little concern because it is transient and mild.

Prevent re-infection — "Eradication of the parasites in both sexual partners is of course ideal . . . obviously a condom is the most effective mechanical barrier."¹

Prescription of condoms — To prevent re-infection take special measures to win the cooperation of the husband when you prescribe use of a condom. Writing for *Schmid* condoms assures high quality, makes purchase less embarrassing.

If there is anxiety that the condom might dull sensation, prescribe XXXX (FOUREX)[®] membrane skins pre-moistened, and like the patient's own skin. For those who prefer a rubber condom, prescribe RAMSES[®] — transparent, tissue-thin, yet strong.

Suggest use of a condom for four to nine months after the wife is trichomonad-free.

Treatment of the wife — The Davis technic[†] using VAGISEC[®] liquid explodes trichomonads within 15 seconds of douche contact⁵ with "over 90 per cent apparent cures. . . ."⁶ VAGISEC (originally "Carlendacide") is also available as jelly.

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[†]Pat. App. for

References: 1. Trussell, R. E.: Trichomonas Vaginalis and Trichomoniasis, Springfield, Ill., Charles C Thomas, 1947. 2. Lanceley, F., and McEntegart, M. G.: Lancet 1:668 (April 14) 1953. 3. Strain, R. E.: J. Urol. 54:483 (Nov.) 1945. 4. Karnaky, K. J.: Urol. & Cutan. Rev. 48:812 (Nov.) 1938. 5. Davis, C. H.: J.A.M.A. 157:126 (Jan. 8) 1955. 6. Davis, C. H.: West. J. Surg. 63:53 (Feb.) 1955.

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BOOKS RECEIVED

BILIARY TRACT, THE—With Special Reference to the Common Bile Duct. Julian A. Sterling, A.B., M.D., M.Med. Sc., Sc.D., F.A.C.S., Staff Surgeon, Albert Einstein Medical Center and the Graduate Hospital, Associate in Surgery, Graduate School of Medicine, University of Pennsylvania. The Williams and Wilkins Company, Baltimore, 1955. 424 pages, \$10.00.

CLASSICS OF BIOLOGY. August Pi Suner. Philosophical Library, New York, 1955. 337 pages, \$7.50.

CLINICAL CARE OF THE DIABETIC, THE. James J. Short, M.D., F.A.C.P., Associate Professor of Medicine, School of Medicine, College of Medical Evangelists. San Lucas Press, Los Angeles, 1955. 84 pages, \$3.95.

DOCTORS' OFFICES & CLINICS—Medical and Dental. Paul Hayden Kirk and Eugene D. Sternberg. Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N. Y., 1955. 218 pages, \$12.75.

FUNCTIONAL OTOTOLOGY—The Practice of Audiology. Morris F. Heller, M.D., Assistant Attending Otolaryngologist for Audiology, Chief of the Audiology Clinic, The Mount Sinai Hospital, New York. Springer Publishing Company, Inc., 44 E. 23rd St., New York 10, N. Y., 1955. 225 pages, \$5.50.

HAND SURGERY—Surgery in World War II—Medical Department, U. S. Army. Edited by Sterling Bunnell, M.D., Office of the Surgeon General, Department of the Army, Washington, D. C., 1955. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 447 pages, \$3.75.

HEALTH AND WELFARE PLANS—Labor-Management Negotiated—Northern California as of May 1, 1954. A report prepared jointly by the Division of Labor Statistics and Research, California Department of Industrial Relations and the Department of Preventive Medicine, Stanford University School of Medicine. Printing Division, Documents Section, Sacramento 14, Calif. 71 pages, 50 cents, plus 2 cents sales tax.

HOW TO REDUCE SURELY AND SAFELY. Herbert Pollack, M.D., McGraw-Hill Book Company, Inc., New York, 1955. 157 pages, \$2.95.

HYPNOTIC SUGGESTION—Its Role in Psychoneurotic and Psychosomatic Disorders—A Thesis. S. J. Van Pelt, M.B., B.S., President of the British Society of Medical Hypnotists. The Philosophical Library, New York, 1956. 95 pages, \$2.75.

LACRIMAL SYSTEM, THE—Clinical Application. Everett R. Veirs, M.D., Chief, Section of Ophthalmology, Scott and White Clinic, Temple, Texas; Professor of Ophthalmology, University of Texas, Postgraduate School of Medicine, Temple Division. Grune & Stratton, New York, 1955. 159 pages, \$7.50.

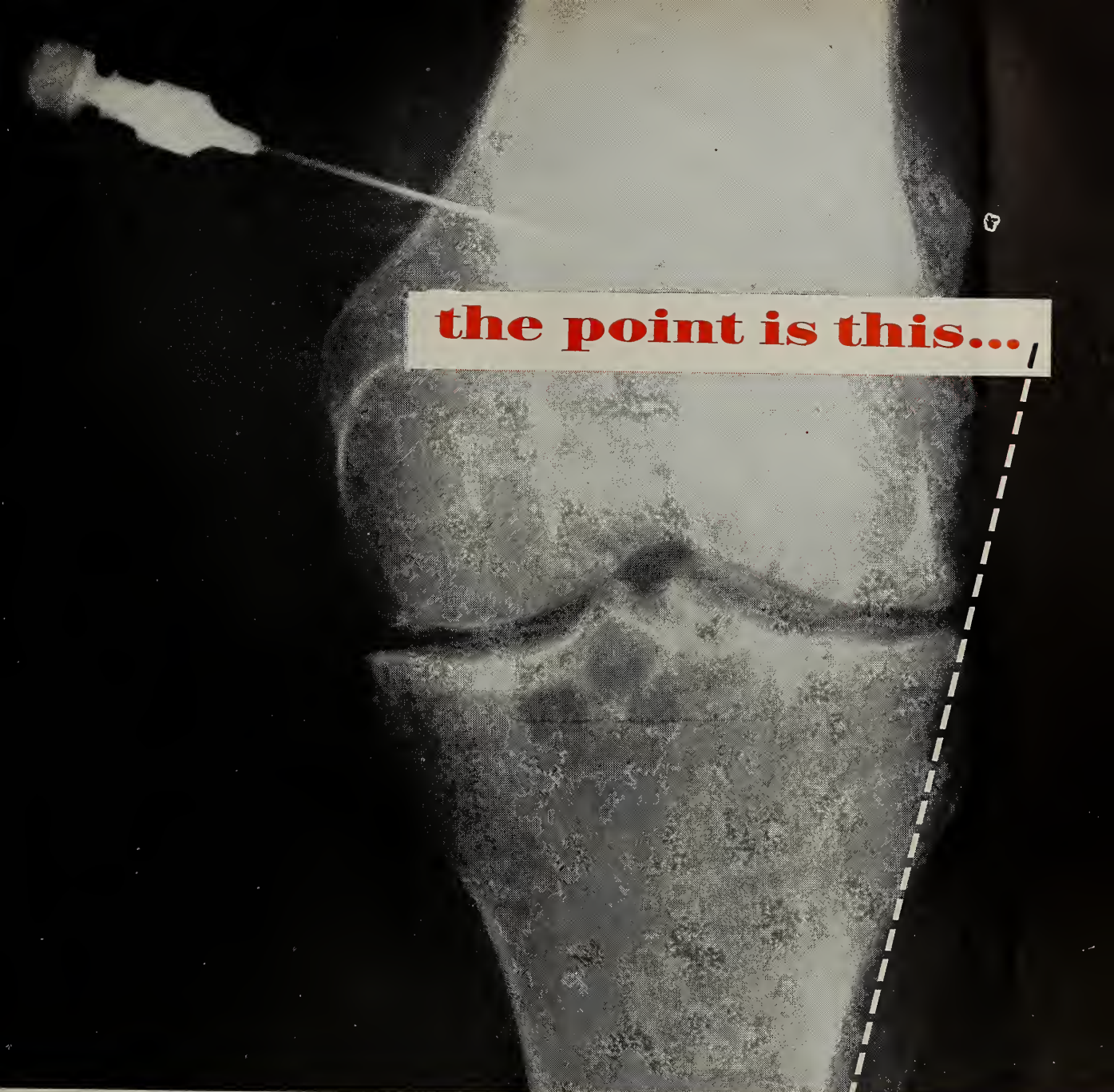
MODERN NUTRITION IN HEALTH AND DISEASE—Dietotherapy. Edited by Michael G. Wohl, M.D., Chief of Human Nutrition, Hahnemann Medical College, and Robert S. Goodhard, M.D., Scientific Director, The National Vitamin Foundation, Inc. Lea and Febiger, Philadelphia 6, 1955. 1,062 pages, 80 illustrations, \$18.50.

NEW CONCEPTS IN SURGERY OF THE VASCULAR SYSTEM. Emile Holman, M.D., Professor of Surgery, Stanford University School of Medicine. Charles C. Thomas, Publisher, 301-327 East Lawrence Ave., Springfield, Illinois. 108 pages, \$3.50.

OF RESEARCH PEOPLE. George E. Burch, M.D., F.A.C.P., Henderson Professor of Medicine, Tulane University School of Medicine, New Orleans, Grune and Stratton, New York, 1955. 56 pages, \$3.00.

PRACTICAL NEUROLOGY. Leo M. Davidoff, M.D., Professor and Chairman, Department of Surgery of the Albert Einstein College of Medicine, and Emanuel H. Feiring, M.D., Associate Professor of Surgery (Neurosurgery), Albert Einstein College of Medicine. Landsberger Medical Books, Inc. Distributed solely by the Blakiston Division of the McGraw-Hill Book Co., New York, 1955. 442 pages, \$7.00.

(Continued on Page 91)



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Placebos May Produce Harmful Side Effects

(Continued from Page 76)

The relative constancy of the placebo effect suggests that "a fundamental mechanism" is operating in all these patients, one that deserves more study, Dr. Beecher said.

He noted that use and study of placebos offer "much of practical value," particularly in the understanding of certain basic problems in the action of narcotics and similar substances.

Dr. Beecher is from the anesthesia laboratory of the Harvard Medical School at the Massachusetts General Hospital.

Nitrogen Mustard Helps Cancer-Caused Disorder

Nitrogen mustard, a chemical compound related to poisonous mustard gas, has been used by three Cleveland physicians to treat a cancer-caused disorder.

Metastatic cancer sometimes causes fluid to accumulate in the cavities of the chest, abdomen, and sac surrounding the heart. The instillation of nitrogen mustard into these cavities decreased or eliminated reaccumulation of fluid in 28 (65 per cent) of 43 patients treated by the physicians.

(Continued on Page 91)



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In addition to the antibacterial components, kaolin and pectin in CREMOMYCIN provide adsorbent and detoxicant action, soothe inflamed intestinal mucosa. The fine subdivision of all ingredients in CREMOMYCIN increases its efficacy.

Each fl. oz. (30 cc.) of CREMOMYCIN contains 3.0 Gm. 'Sulfasuxidine,' 300 mg. neomycin sulfate, 0.3 Gm. pectin and 3.0 Gm. kaolin. Supplied in 8 oz. bottles.



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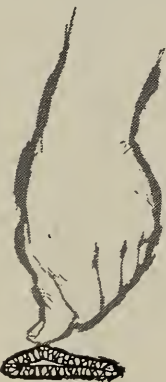
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1. Wolfson, W. Q.: Mississippi Valley M. J. 77: 66, 1955.



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Cancer Survey

The largest cancer survey ever conducted in any country has been completed in 10 American metropolitan areas by the National Cancer Institute.

The survey, reported in a recent issue of the *Journal of the American Medical Association*, showed that "some progress" has been made in the management of the cancer problem.

There was a rise in incidence from 1937 to 1947, but it is difficult to determine the significance of this or to tell how much of the rise is "real," the report said.

"Improved techniques for diagnosis have resulted in the discovery of some cases that in the past would have been missed. The number of physicians with training and experience in diagnosis of cancer has also increased. Improved economic conditions in 1947 compared to 1937 may also have contributed. People are more likely to obtain adequate and specialized medical care during economic prosperity than during a depression period," the report said.

Cancer incidence, prevalence, and mortality rates were surveyed in 1937-39 and 1947-48 in Chicago, Detroit, Philadelphia, Pittsburgh, Atlanta, New Orleans, Dallas, Denver, San Francisco, and Birmingham, Ala.

The survey was on "a scale unrivaled in any other country" and could not have been undertaken without the support of state and county medical societies, the report said. Thousands of physicians contributed information concerning their patients.

"It is heartening to realize that such studies may be undertaken within the framework of the American system of medical care without breaching the traditional physician-patient relationship," the report said.

The survey showed that in 1947, 430 of every 100,000 residents had cancer at some time during the year—26 per cent more than in 1937, and 149 of every 100,000 died of cancer—an increase of 19 per cent. In 1947, 319 new cases were diagnosed for every 100,000 persons—30 per cent more than in 1937.

The survey also revealed that:

Thirty-two of every 100 newborn children may expect to develop cancer at some time during their lives, if present rates continue.

Of those 32, three may be expected to develop cancer by age 45, 14 by age 65, 23 by age 75, and the remainder in after years.

More than 500,000 new cases are being diagnosed in the United States each year. At current rates, cases may be expected to increase by more than 50 per cent in the next 25 years, since both total population and the proportion of older persons are expected to increase.

(Continued on Page 14)

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Good health during life's later years is a constant delight to those who have it. To help these spirited people sustain their activities, many doctors prescribe regular dietary supplementation with GEVRAL. This special geriatric formula provides 14 vitamins, 11 minerals, and Purified Intrinsic Factor Concentrate—all in one convenient, *dry-filled* capsule.

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Vitamin D.....	500 U.S.P. Units	Inositol.....	50 mg.	Boron (as $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$).....	0.1 mg.
Vitamin B ₁₂	1 mcgm.	Ascorbic Acid (C).....	50 mg.	Copper (as CuO).....	1 mg.
Thiamine Mononitrate (B ₁).....	5 mg.	Vitamin E (as tocopheryl acetates).....	10 I.U.	Fluorine (as CaF_2).....	0.1 mg.
Riboflavin (B ₂).....	5 mg.	Rutin.....	25 mg.	Manganese (as MnO_2).....	1 mg.
Niacinamide.....	15 mg.	Purified Intrinsic Factor Concentrate.....	0.5 mg.	Magnesium (as MgO).....	1 mg.
Folic Acid.....	1 mg.	Iron (as FeSO_4).....	10 mg.	Potassium (as K_2SO_4).....	5 mg.
Pyridoxine HCl (B ₆).....	0.5 mg.	Iodine (as KI).....	0.5 mg.	Zinc (as ZnO).....	0.5 mg.
Ca Pantothenate.....	5 mg.	Calcium (as CaHPO_4).....	145 mg.		

Other Lederle geriatric products include: GEVRABON* Vitamin-Mineral Supplement Liquid with a wine flavor; GEVRAL* Protein Vitamin-Mineral-Protein Supplement Powder; and GEVRINE* Vitamin-Mineral-Hormone Capsules.

Cancer Survey

(Continued from Page 10)

Cancer illness rates increase rapidly during adult life and old age—at rates of about 40 per 100,000 at age 25; 475 per 100,000 at 50, and 1,900 per 100,000 at 75.

Adjusting for age difference, cancer is discovered at the same rate among men and women (331 and 330 per 100,000).

The death rate is higher for men than women (169 against 147 per 100,000). This is due mainly to the fact that cancer in men originates more frequently in such sites as stomach and lungs, with poor chances for recovery.

In men the risk of cancer of the digestive system is dominant, with a lifetime probability of 10.3 per 100.

In women the risk of cancer before 65 is highest in the reproductive organs—a rate of 7.2 for the

genital organs and 7.5 for the breast per 100. After 65, the risk is greatest in the digestive system.

Nearly all forms, except cancer of the reproductive organs, occur more frequently among men.

Cancer of the lung and bronchus occurs four and one-half times more among men than women. The laryngeal cancer rate is 12 times greater.

Incidence and mortality for cancer of the lung and bronchus more than doubled from 1937 to 1947. This may be due partially to improved case finding, but part of the rise is real.

In 1947 cancer was diagnosed at a rate of 272 per 100,000 among nonwhite persons, compared to a rate of 333 for whites. Skin cancer is relatively rare among nonwhites, while among white persons the skin accounts for one in seven cancers. The low nonwhite rate is generally considered to result from "a true racial difference in susceptibility."

(Continued on Page 18)



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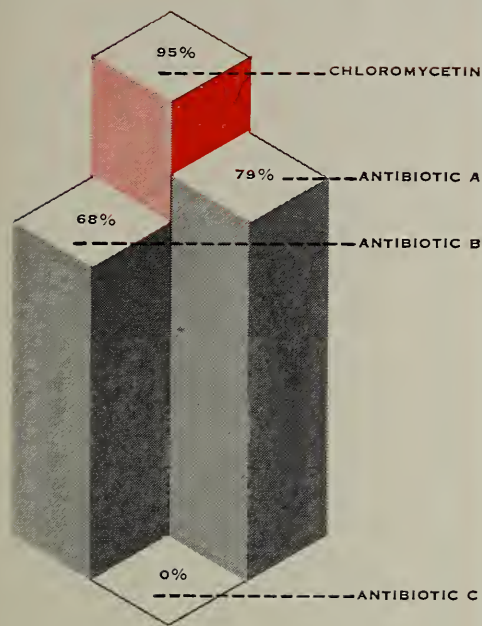
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references: (1) Altemeier, W. A.; Culbertson, W. R.; man, R.; Cole, W.; Elstun, W., & Fultz, C. T.: *J.A.M.A.* 157: 1955. (2) Weil, A. J., & Stempel, B.: *Antibiotic Med.* 1:319, 1955. (3) Jones, C. P.; Carter, B.; Thomas, W. L., & Creadick, R. N.: *Gynec.* 5:365, 1955. (4) Austrian, R.: *New York J. Med.* 55: 1955. (5) Murphy, F. D., & Waisbren, B. A., in Murphy, F. D.: *Medical Emergencies: Diagnosis and Treatment*, ed. 5, Philadelphia, Davis Company, 1955, p. 557. (6) Felshin, G.: *J. Am. M. Assoc.* 10:51, 1955. (7) Kass, E. H.: *Am. J. Med.* 18:764, 1955. (8) Tebrock, H. E., & Young, W. N.: *New York J. Med.* 55:1159, 1955. (9) Stein, M. H., & Gechman, E.: *New England J. Med.* 252: 1955. (10) Branch, A.; Starkey, D. H.; Rodgers, K. C., & Powell, E., in Welch, H., & Marti-Ibáñez, E.: *Antibiotics Annual, 1954-1955*, New York, Medical Encyclopedia, Inc., 1955, p. 1125. (11) Murdoch, D. S., & Cockcroft, W. H.: *Canad. M. A. J.* 72:586, 1955. (12) N. J. C.: *M. Times* 83:253, 1955.

This graph is adapted from Altemeier, Culbertson, Sherman, Cole, Elstun, & Fultz.¹ It represents the second and concluding part of data presented in a previous issue.



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Dentist Describes Ear Protector

A dentist has suggested a way of keeping water out of the ears while swimming.

Jacob Schaffer, D.D.S., Newark, N. J., outlined the method in a recent issue of the *Archives of Otolaryngology*, published by the American Medical Association.

A cast of the inside of the outer ear is made of a plastic material (acrylic) used in making dentures. An impression of the entire ear is taken with an elastic material. A model is then poured and a semi-soft acrylic cast is formed. When finished the cast will lock into the ear and be a self-retentive complete seal, he said.

The seal is especially useful for persons with perforated ear drums or with healed postoperative cavities, Dr. Schaffer said.

Cancer Survey

(Continued from Page 14)

From 1937 to 1947 the number of cancer patients seen in hospitals increased 7 per cent—from 68 to 73 per 100 patients.

Making the report were John R. Heller, M.D., Sidney J. Cutler, M.A., and William M. Haenszel, M.A., Bethesda, Md., of the National Cancer Institute of the U. S. Public Health Service, Department of Health, Education and Welfare.

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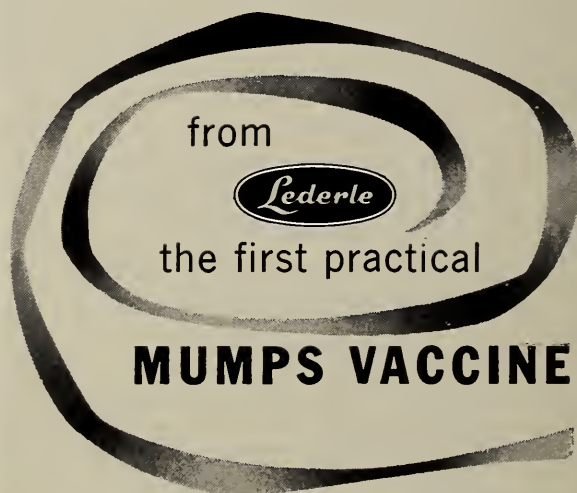
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Physician Describes Portable Telephone Aid

A device which allows hard-of-hearing persons to use any telephone without inconvenience is described in a recent issue of the *Journal of the American Medical Association*.

A portable, pocket-sized, telephone amplifier, called the Scottie Phone-Aid, has been developed. It can be clipped to any telephone receiver in a moment, Dr. Matthew N. Hosmer, of the subdepartment of otolaryngology, University of California School of Medicine, San Francisco, said.

Its use eliminates the necessity for the hard-of-hearing person to hold the receiver against his own hearing aid. The plastic case is thin enough to fit the receiver without disturbing the normal relationship between the mouth and the transmitter, he said.

The amplifier is powered by two small batteries and three transistors. The pick-up of speech from the telephone is through an induction circuit located in the small arm that clips the instrument to the receiver. All room and magnetic disturbance noises are eliminated by the amplifier, which was developed by the Remler Company, San Francisco.



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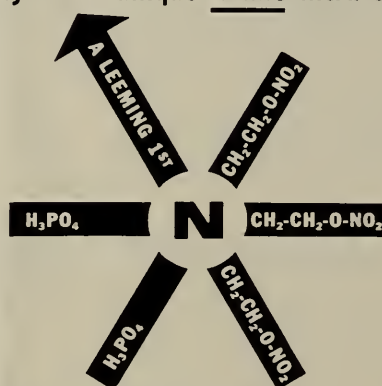
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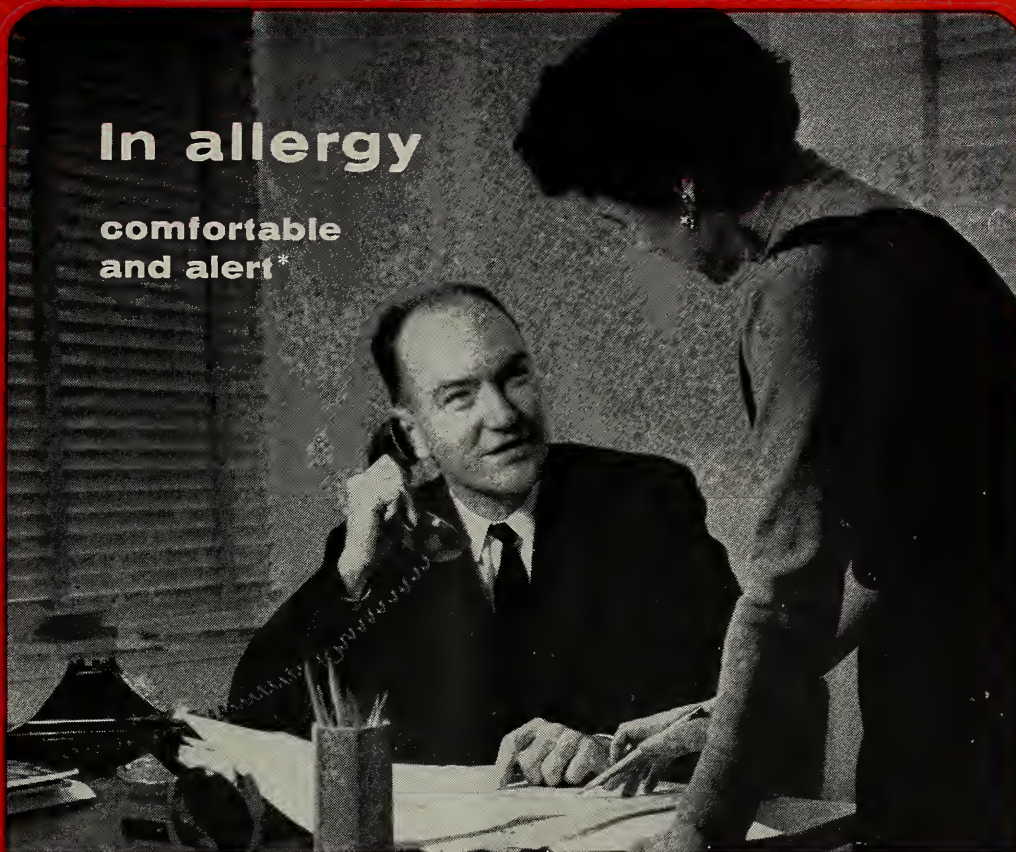
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Tablets—25, 50, and 100 mg.

Syrup—25 mg. per teaspoonful

Cream—2%

1. Crip, L. H., and Aaron, T.: J. Pediat. 34:414, 1949.
2. New and Nonofficial Remedies, Philadelphia, J. B. Lippincott Company, 1954, p. 15.
3. Schwartz, E.: Ann. Allergy 7:770, 1949.
4. Basic Drugs, U. S. Public Health Service Hospitals and Clinics, Federal Security Agency, P.H.S. 1953, p. 99.
5. Feinberg, A. R.: Postgrad. Med. 13:266, 1953.
6. Friedlaender, S., and Friedlaender, A. S.: J. Lab. & Clin. Med. 33:865, 1948.



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**Reserpine Helps Arthritis,
Delirium Tremens Patients**

Reserpine, a tranquilizing drug, has now been used to treat two more disorders—delirium tremens and arthritis.

New York and Los Angeles physicians reported in a recent issue of the *Journal of the American Medical Association* using reserpine (Serpasil), a derivative of *Rauwolfia serpentina*, for two groups of patients. The results warrant further trial of the drug as a method of treating both disorders, they said.

Drs. Milton Avol and Philip J. Vogel, Los Angeles, who treated 24 patients for delirium tremens, said reserpine "greatly shortened" the time necessary to free alcoholic patients of their agitation and hallucinations. In fact, all but three were relieved of their symptoms within 24 hours or less. The others were relieved within 48 hours. The average time was 18 hours.

Paraldehyde, a drug frequently used as a calming agent, takes much longer to produce desirable effects. In addition, chronic alcoholics very quickly develop a tolerance to paraldehyde, so that even large doses are ineffective or only partially effective, they said. Also the odor of paraldehyde pervading the wards is "distressing" to both patients and ward personnel.

While reserpine may cause some undesirable side effects, none appeared in any of these patients. However, the physicians pointed out that the dose should be "individualized" because of the great variations in reactions to the drug.

In addition to reserpine, the patients were placed on the usual treatment for acute alcoholism, including intravenous administration of fluids and high doses of vitamins.

The physicians said they thought a program of small daily doses of reserpine after the patients are discharged from the hospital might be helpful. This would alleviate some of the anxiety that causes these patients to resume drinking soon after discharge.

Almost half of the 30 patients with various types of arthritis given the drug showed some improvement, Dr. Harry Bartfeld, New York, said.

The drug inhibits emotional and psychological stimuli which cause muscle spasm and other changes in muscle which in turn cause tenderness, pain, and stiffness, he said.

The patients treated had osteoarthritis, rheumatoid arthritis, a combination of those two types, and psychogenic rheumatism.

Reserpine was of greater value in psychogenic rheumatism than in the other types.

The sense of well-being and serenity and general uplifting of spirit due to reserpine may help in giving the arthritic patient a better and more stable approach to his disease, Dr. Bartfeld said.

(Continued on Page 28)

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Neomycin sulfate 5 mg.

(equiv. to 3.5 mg. neomycin base)

Preserved with myristyl-gamma-
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Supplied:

Bottles of 2.5 cc. and 5 cc. with dropper.

Application:

Useful both in the eye and the
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Neo-Cortef** *drops*

STERILE SUSPENSION



Reserpine Helps Arthritis, Delirium Tremens Patients

(Continued from Page 26)

He pointed out that reserpine was the only form of treatment used in this study. Other drugs generally used for arthritis, gold therapy, psychotherapy, and physiotherapy "certainly" should be used in addition to reserpine when necessary, he said.

Drs. Avol and Vogel are from the department of nervous diseases, College of Medical Evangelists, and the neurological and neurosurgical services, Los Angeles County General Hospital. Dr. Bartfeld is on the staffs of New York University Post-

Graduate Medical School, University Hospital, and Bellevue Hospital, New York.

The Los Angeles study was supported by a grant from Ciba Pharmaceutical Products, Inc., Summit, N. J.

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General Surgery, Two Weeks, April 23.
Basic Principles in General Surgery, Two Weeks, April 9.
Thoracic Surgery, One Week, June 4.
Esophageal Surgery, One Week, June 11.
Breast & Thyroid Surgery, One Week, June 18.
Gallbladder Surgery, Ten Hours, April 9, June 25.
Fractures & Traumatic Surgery, Two Weeks, June 18.
Varicose Veins, Ten Hours, April 30, June 18.
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Vaginal Approach to Pelvic Surgery, One Week, April 30, June 11.
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Gastroenterology, Two Weeks, April 23.
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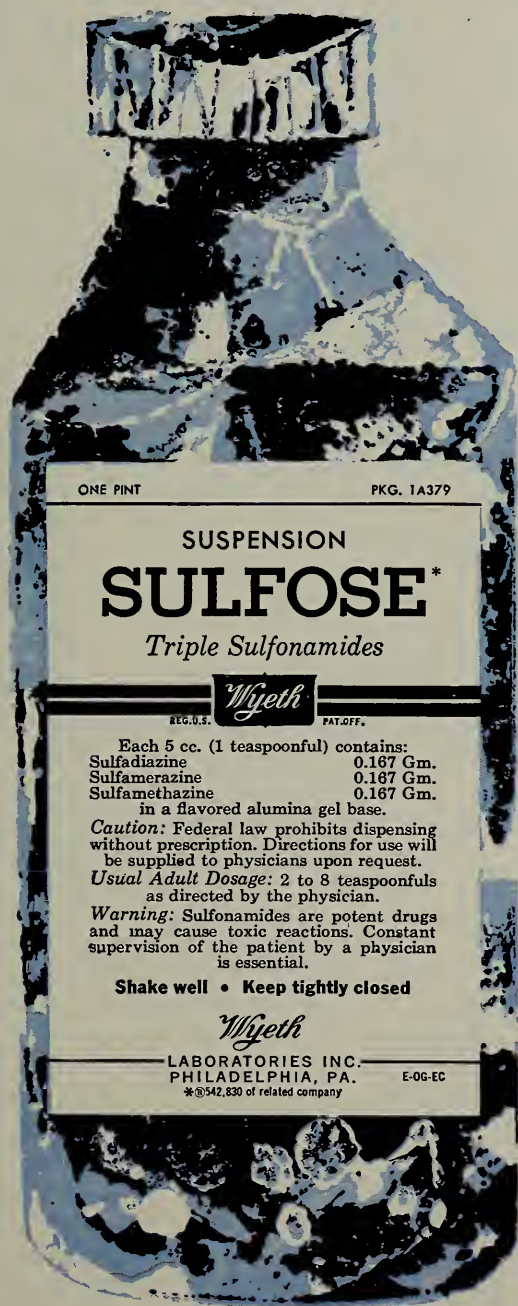
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Physician Prefers Steam Kettle to Newer Humidifier

The good old steam kettle works better than a mechanical humidifier for treating a childhood respiratory disorder, a Haifa, Israel, physician said recently.

Dr. Abraham Friedman said that the steam kettle is better because it can produce more moisture than a cold-air mechanical humidifier, the now generally accepted apparatus. Moist air helps prevent the blocking of breathing passages which may occur in an acute inflammatory disease of the larynx, trachea, and bronchi.

He explained that in breathing, the air enters the respiratory tract at room temperature and humidity. On its way down the air absorbs moisture from the membrane lining the passages. It finally is exhaled at body temperature and saturated with water. The difference in temperatures and humidities between the air inhaled and exhaled results in a continuous loss of water from the respiratory tract.

In acute respiratory disease, the loss is speeded up and the breathing passages eventually may be blocked by the formation of a dry crust on the membranes. The drier the inhaled air, the more water

it absorbs from the membranes, thus increasing their "drying out."

To prevent obstruction, the air breathed in must be as moist as the air breathed out. This means that the temperature and humidity of the air inhaled should be approximately equal to the temperature and humidity of the air exhaled.

Since there is a ceiling on the amount of water air will hold at a specific temperature, the air temperature must be raised to increase water content. The mechanical humidifier may raise water content, but the low-temperature air cannot hold as much water as high temperature air would, he said, adding that a steam kettle accomplishes both things.

While recommending the steam kettle method, Dr. Friedman warned that necessary precautions must be taken against the hazards of a burn and the development of a high fever in the child.

Dr. Friedman, of the department of pediatrics of Rambam Government Hospital, Haifa, made his report in a recent issue of *Archives of Otolaryngology*, published by the American Medical Association.

Drugs Have Little Effect on Morning Sickness

Most drugs have little specific effect, except psychologically, upon "morning sickness" in pregnancy, according to a report by the American Medical Association's Council on Pharmacy and Chemistry.

The report appears in a recent issue of the *Journal of the American Medical Association*.

The commonly used antihistaminic and anti-motion-sickness drugs "appear to be no more effective" in simple nausea and vomiting than placebos, substances given as substitutes for real drugs, the report said.

Any effect can be attributed to a sedative action of the drugs rather than to any specific inhibition of nausea or vomiting, it said.

There is a lack of definitive knowledge about the cause of nausea and vomiting in pregnancy. It appears that the physiological changes of pregnancy may cause it, but "there is little question," that psychological factors play a major role, the report said. This often has been given as the explanation for the beneficial results reported after psychotherapy, administration of placebos, and the use of unrelated drugs.

Two types of nausea and vomiting are associated with pregnancy. The mild form, commonly observed during the first 14 to 16 weeks of pregnancy, is characterized by some disturbance of appetite and reactions to food in approximately 25 to 30 per cent of pregnant women. It may vary in severity from slight

morning nausea to occasional vomiting, but it is not accompanied by any signs of disturbed nutrition.

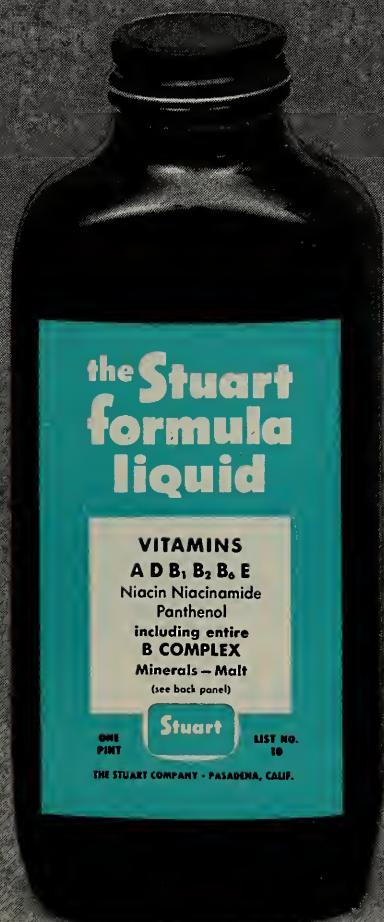
The other type, pernicious vomiting, is characterized by excessive vomiting and nutritional disturbances. If it is not stopped, it may result in neurological changes, liver damage, eye hemorrhages, and kidney damage. However, pernicious vomiting rarely occurs, the report said. Most patients with it are under mental stress suggested by or related to the pregnancy.

Recommended treatment for the mild form includes adequate rest, lightening of household burdens, avoidance of nervous excitement, and the eating of frequent small meals high in carbohydrates. In addition, mild sedatives may be used. The patient should be reassured that the condition is not serious and the symptoms generally will disappear by the end of the 16th week, the report said.

Pernicious vomiting requires hospital treatment to overcome the effects of disturbed nutrition by intravenous or intramuscular administration of nutrients and vitamins. This, plus quiet surroundings, sedation, and reassurance, should break the cycle of vomiting, the report said.

The new drug chlorpromazine (Thorazine) has shown considerable promise in stopping pernicious vomiting, but because it may cause serious side effects, it should not be used for the mild form, the report said.

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Two tablets, suggested daily dose, contain: 10,000 USP Units A, 1,000 USP Units D, 100 mg. C, 5 mg. B₁, 5 mg. B₂, 0.2 mg. B₆, 1 mcg. B₁₂, 30 mg. Niacin and Niacinamide, 4.3 mg. Panthenol, 0.2 mg. E, 15 mg. Iron, 0.15 mg. Iodine, 200 mg. Calcium, 0.2 mg. Cobalt, 0.75 mg. Copper, 5 mg. Magnesium, 5 mg. Potassium, 1 mg. Manganese, 0.3 mg. Zinc.

Drug Acts as Booster for Nitroglycerin

The drug with the trade name Metamine has been found to be useful as a booster for nitroglycerin in relieving the severe pain of angina pectoris, two Baltimore physicians recently said.

Angina pectoris is a heart condition marked by severe chest pain and feelings of suffocation and impending death. Attacks are usually precipitated by exertion.

While Metamine, the biphosphate salt of triethanolamine trinitrate, has the same effect as nitroglycerin, it is slower acting. However, its span of action (four to six hours) is much longer, the doctors said in a recent issue of the *Journal of the American Medical Association*.

Because of its longer action span, regular use of the drug diminishes the frequency of use of nitroglycerin they said. Intolerance to Metamine is rare, as are undesirable side effects such as skin, blood,

and gastrointestinal manifestations, they said. It has a slight, but unimportant, tendency to lower blood pressure.

The drug was given to 71 patients, of whom 51 had known histories of angina pectoris, and 20 who never had had previous treatment for coronary heart disease.

The average number of angina attacks among the patients dropped from 7.1 a day before using Metamine to 3.4 a day with Metamine. Only 13 patients showed no improvement while taking the drug.

Drs. Harvey L. Fuller and Leon E. Kassel of Sinai Hospital, Baltimore, said that further study may reveal ways that Metamine can be used to prevent and relieve attacks of acute coronary insufficiency, and to offset and reduce the effects and extent of myocardial infarction, another coronary disorder.

The study was supported in part by a grant from the Cardiovascular Research Foundation of Thos. Leeming & Co., New York.

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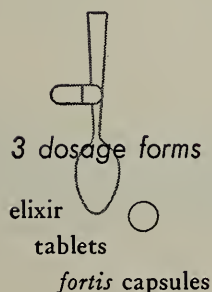
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Survey Disproves Old-Wives' Tale

A recent study by two Minnesota physicians seems to disprove an old-wives' tale and present a problem in semantics.

Drs. Edward C. Clark and Henry W. Dodge Jr., Rochester, Minn., found in a study of persons who had lost their sense of smell that, contrary to popular belief, they still could "taste."

As a result, the doctors felt that "flavor" is a poor word to use to describe the sensation caused by perceiving the taste of food, because it implies that the ability to smell is a necessary part of the ability to taste.

They suggested that "savor," which derives from the old French word meaning "taste," be substituted for flavor, since it omits any connection with the sense of smell.

Five patients without the sense of smell were compared to 10 normal persons. They were given 31 vegetables and fruits in different consistencies at room temperature. The solid foods were cubed to prevent easy identification by shape, and all the test subjects were blindfolded.

The best scores were obtained by normal persons, but some of those without the sense of smell did as well as some of the normal persons and some did even better than the poorest normal persons.

The fact that these persons without the sense of smell did as well as they did suggests that the sense of smell is not of paramount importance in the perception of flavor, they said. Taste, feeling in the mouth, vision, hearing, memory, and the psychological state at the moment of eating must at times play "major roles" in identification of the flavor of substances, the doctors said.

Before it can be fully understood just how flavors are identified, the relationship of the sense of smell to other sensations must be defined, the physicians said. In addition, they wondered if there is some undiscovered factor in the mouth and nasopharynx which enters into the perception of flavor.

The physicians, from the sections on neurology and neurologic surgery, Mayo Clinic, made their report in a recent issue of the *Journal of the American Medical Association*.

Please Note

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—A.M.A. Secretary's Letter



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Polypoid Disease of the Intestines

Its Origin, Development, Implications and Treatment

J. ARNOLD BARGEN, M.D., Rochester, Minnesota

THE STUDY OF POLYPOID DISEASE of the digestive tract has fascinated internists and surgeons for many years. Ever since the description by Menzel²⁴ in 1721 of a number of wartlike excrescences arising in the colonic mucous membrane which showed evidence of pronounced inflammation, investigators all over the world have been interested in this subject. A mountain of literature on it has accumulated. Most of it has dealt with the incidence of polyps, opinions about their relation to cancer, and treatment.

I shall try to present in an orderly fashion the story of intestinal polyposis as we know it today, drawing largely on my own experience and to a lesser degree on the experience of others as I have gleaned it from the literature. I shall make no attempt to bring to your attention all the opinions of those authors whose names appear in publications, although they may not be irrelevant to the subject. I should like to refer again, however, to Menzel's description of polyps, which apparently started a chain of events that brought to light so many of the problems related to intestinal polyps which have been a source of concern to many observers since.

The big problem, of course, has been the relation of polyps to carcinoma, but then there have also been the problems of the relation of inflammation to polyposis and of the relation of inflammation to car-

cinoma. However, it might be interesting to list a few of the outstanding names of those who have contributed to knowledge of the subject of polyposis in the last 200 years. You will probably find some names lacking, but may I remind you that I have made no effort to make a complete review of the literature, but rather am listing those whose studies have particularly influenced my views and who, I feel, have played a part in my observations in the sum total of our present knowledge of the subject of intestinal polyps. These names include Wagner, Rokitsansky, Lebert, Virchow, Verse, Woodward, Cripps, Erdmann and Morris, Susman, Schmieden and Westhues, Lockhart-Mummery and Dukes, Ribbert, Hurst, Genkin and Dmitruk, Hoelzel and Da Costa, McKenney, Kennedy and Weber, Mayo and Wakefield, Ewing, Saint, Broders, Coffey, MacCarty,²⁰ Rankin, Robertson, Spriggs, Struthers, Swinton and Warren, Wesson, Yeomans, Cromar and Dixon,² Sloan and Gage, Hauch, Buie and Smith, Atwater,¹ and many others, all of whom have made substantial contributions to present-day knowledge of intestinal polyposis.

The results of earlier investigations suggested that there may be several kinds of intestinal polyps, dissimilar both etiologically and pathologically, and this undoubtedly accounts for the innumerable classifications which have been suggested in later years. There are several basic concepts concerning the etiology of multiple adenomas of the large bowel: First, the hypothesis of Virchow³⁸ that a hyperplastic response

From the Section of Medicine, Mayo Clinic and Mayo Foundation Rochester, Minnesota. (The Mayo Foundation is a part of the Graduate School of the University of Minnesota.)

Presented at the meeting of the Hollywood Academy of Medicine, Hollywood, California, September 8, 1955.

Submitted September 23, 1955.

to inflammation produces the polyps; second, the opinion of Ribbert²⁷ that the tumors originate from misplaced embryonic rests in the wall of the bowel; third, the hypothesis that chronic irritation in the presence of a congenital predisposition is necessary, as suggested by Verse.³⁷ Genkin and Dmitruk,¹¹ as well as Hoelzel and Da Costa,¹³ produced polyps experimentally in animals.

The hereditary or familial disposition to multiple adenomatosis of the intestine has been noted repeatedly by many of the authors mentioned. Lockhart-Mummery¹⁸ expressed the opinion that the condition is transmitted as a mendelian dominant. Congenital occurrence of the polypoid disease has never been substantiated by the demonstration of polyps at birth, although my colleagues and I have seen polyps in the second year of life. Present-day knowledge and review of the literature make it obvious that the concepts of etiology expressed in the past are quite comprehensive. Whereas various observers in the past have tried to make various types of polyps conform to a pattern, subsequent experiences have shown indubitably that polyps, as they are now seen, have a variety of origins. Therefore, to get a better concept of the polyps in any individual case, it is well to have, as one might say, a bird's-eye view of the field of polyposis as a whole so that when any case is seen, the polyps present may immediately be classified and the treatment directed accordingly.

CLASSIFICATION

It is best to classify polyps (Table 1) as to their origin, inception and development, since by doing so, one will get a broader view of the subject and will be able to crystallize opinion about what to do in any given case of polyposis or intestinal polyps.

With such an outline and a good clinical history, a given case of polyps can be readily placed in its proper category. Increasing experience will continuously enhance the value of such a classification. The treatment of one type of polyposis or polyp involves eradication of the polyps. In another type, the situation is quite the opposite. There has been a great deal of misunderstanding about this in the past, and I dare say that in some cases the colon has been removed unnecessarily because of failure to comprehend the nature of some polyps. Such comprehension can only come through long experience with many cases, but a classification of this type is invaluable in arriving at a solution of any given case of polyps.

PATHOGENESIS

Opinions concerning the pathogenesis of polyps have varied greatly in the past. Here again, the various hypotheses suggested indicate that the observer advocating this or that hypothesis tried to

TABLE 1.—Classification of polyps to suggest their origin, inception and course of development

Group 1—Single polyps.
Group 2—Multiple polyps.
Group 3—Disseminated polyposis.
Group 4—Diffuse polyposis.
Group 5—Polyposis secondary to inflammatory disease.

catalogue all cases of polyps into a single classification as far as their origins and development were concerned. Each hypothesis has had some support in scientific observation. Each has failed to meet all the requirements of explaining the formation and growth of all types of polyps. A study of the origin of polyps is in essence the study of the formation of tumors itself. At least four pathways of origin of intestinal polyps are now well recognized.

The first deals with the commonly accepted thought that polyps begin as an overgrowth of the intestinal epithelium with the heaping of cells on cells, finally forming visible mammillations or excrescences on the surface and these in turn growing larger until they become well-recognized adenomas. Between October 1, 1942, and February 1, 1943, Atwater and I examined with a hand lens the carefully cleansed colons of all the individuals who came to necropsy at the Mayo Clinic. Of the 241 individuals examined, 166 had polyps. The study included newly born infants and adults up to 90 years of age. No polyps were observed until the fourth decade of life and the incidence was greatest in the sixth and eighth decades. The mean age of the patients who did not have polyps was 51 years, whereas the mean age of patients who did was 64 years. There were 3.18 men with polyps to each woman. However, since the same proportion of men to women existed in the control group, the sex distribution would hardly seem significant. In no instance was a mucosal projection considered a polyp unless there was adequate microscopic verification. This study showed that in polyps there was thickening of the mucosa owing to the elongation of the crypts of Lieberkühn.

From this study it seems highly likely that the epithelium of the colon must pass through a chain of changes in the development of polyps. The primary change is epithelial. The reason, however, why a localized patch of epithelium undergoes aberration from the normal is not evident. However, the existence of morphologic changes of varying degrees is apparent. The genesis of a polyp is recognized earliest on the basis of more rapid proliferation of the epithelium at one site than in the neighboring epithelial elements. It is possible that this ability to proliferate is inherent in normal epithelium. If so, it would seem that some restraint or some inhibitory factor had been removed or diminished and thereby

an indefinite degree of overgrowth had been made possible. At times, such changes proceed to the point of pedunculation of the mucosa, possibly designed to afford a greater base and easier nutritional supply to the growing structure. When this occurs, the pedunculated and so-called benign polyp is formed. The epithelium in the glands when the polyps first begin to develop exhibits primary hyperplasia. The cells retain their normal microscopic appearance and their apparent physiochemical functions such as production of mucus.

The numerical increase results in enlargement of the size of each crypt of Lieberkühn involved in the proliferative process. In order to accommodate for this increase, the glandular structure itself must elongate. Limited by the muscularis mucosae and the subepithelial structures, this growth proceeds toward the lumen of the intestine. Such glandular hypertrophy becomes evident in a localized region within which the glands are taller and deeper than the neighboring normal structures. A tiny plaque or elevation is produced on the mucosal surface of the bowel. From the observations in this study other changes then follow.

In the process of accommodation of the overgrowth the tubules often become branched and the nuclei pile on each other. They lose their normal position near the membrana propria and move outward toward the lumen of the tubule. An increasing proportion of cytoplasm appears between the nucleus and base of each cell. The outline of the nuclei changes. The nuclei lose their cuneiform shape and become spherical. Polyhedral, irregular nuclei are prominent. The chromatin content of the nuclei increases in many cells. In others, the vesicular character becomes evident. Mitotic figures become more frequent. The columnar shape of the individual cells gradually is lost and a more cuboid form is assumed. Cells lose their normal alignment and eventually become a heterogeneous group with no regularity of position. The alignment of the glands becomes irregular. The ability of the cells to produce mucus is gradually lessened. If simple hyperplasia only is present, as it is at this stage, staining usually is like that of normal cells. However, a small percentage of benign polyps display variation in their ability to be stained by hematoxylin and eosin.

At the site of the primary hyperplasia in the benign polyps, the basement membrane is intact. Minimal changes are noted in the mucosal stroma until the larger polyps have been formed. At that point, the polyps are frequently the seat of inflammatory changes and small hemorrhages. The presence or absence of these changes forms a pattern. This pattern depicts an epithelial transition progressive from normal tissue to the so-called benign polyps through the various degrees of cellular differenti-

ation. From all of this, it becomes evident that at least one way in which polyps are formed is through epithelial changes.

Another way in which polyps develop is through changes in the muscularis mucosae and the lymphoid tissue, namely, the subepithelial structures. The amount of lymphoid tissue in the subepithelial layers is variable in the colon of humans. The lymphoid tissue occurs as aggregations of lymphocytes situated immediately below the epithelial layer. These lymphoid aggregations may occur as perivascular infiltrations about the blood vessels and they may lie either superficially to or deeper than the muscularis. The size of the individual lymphoid aggregations also varies. When a lymphoid aggregation becomes very large, it disrupts the continuity of the muscularis mucosae. Under pathologic conditions it may become encapsulated and acquire well-marked secondary centers which show up as a collection of large, pale-staining cells in the center of the lymph follicle. When this stage has been reached, secondary changes become evident in the overlying epithelium. Encapsulated follicles with secondary centers rarely, if ever, occur in a normal colon.

Our observations in this regard concern a group of 61 patients with carcinoma of the colon, 2.5 cm. in diameter or less, coming to the Mayo Clinic between the years 1909 and 1934, inclusive. The investigation was prompted by a discussion of the advisability of extensive and radical resection for such small lesions. The lesions varied from 0.5 to 2.5 cm. in diameter. The average was about 1 cm. In all the patients, apparently a single carcinoma was found both clinically, preoperatively, and at operation. In 26 of the 61 patients the lesions were situated within approximately 5 cm. of the anus. Fourteen of the patients had a grade 1 lesion, 34 had grade 2, ten had grade 3, and three had grade 4. Twenty-eight (46 per cent) lived more than 5 years after operation. Thirty-four of the 61 at the time of resection showed no extramural spread. In 27 of these 34 instances, there was extramural spread of the tumor following operation and in 14 of the 34 there was local invasion beyond the intestinal wall. Since the growths were 2.5 cm. or less in diameter the question naturally arose, why were not the end results better?

The operation used was as radical as those commonly done in surgical treatment of lesions much larger than the average size of lesions in this group. Thus, the small size of the lesions in this group was not a prominent factor in determining the ultimate results as far as cure or further development of carcinoma was concerned. Nor did the type of operation used for any individual growth constitute

a determining factor in the ultimate result. The site of the lesions, the grade of malignancy, the type of lesion according to infiltration of the wall, extramural spread, involvement of the lymph nodes, and age of the patient at onset seemed to be vital prognostic factors. The number of carcinomas which developed when there had not been extramural spread at the time of resection was somewhat unexpected. The occurrence of new growth, after apparently complete surgical ablation, suggested that the causative factor may reside not in the epithelial cells of the growth itself, but in the surrounding tissue.

MacCarty²¹ had previously stressed the significance of the environmental relations of various cells and had drawn particular attention to the influence of lymphoid tissue on the nutrition of epithelial cells. For this reason a detailed histologic study of the surrounding tissues of these cancers was made. From this observation, it became apparent that in many cases one is not dealing with recurrence of a removed carcinoma but that a new carcinoma separate and distinct from the original growth has caused death. A careful study of the submucosal structures of these specimens showed large encapsulated lymph follicles with well-formed secondary centers in all but one of the cases. That particular case was one in which the carcinoma had arisen in a diverticulum. Changes in the epithelium were seen when the follicles were fully developed and contained secondary centers.

One wonders if the epithelial changes were not secondary to or the direct result of the underlying follicles. Rupture of the follicle would allow the epithelium to prolapse into the submucosa. The subsequent fate of the prolapsed epithelial cells would appear to be governed by the extent of the lymphatic barrier which surrounded them. Occasionally, the follicles ruptured into the lumen of the bowel, causing ulceration. In the process of the healing of the ulcers thus formed, epithelial cells became trapped in the deep layers of the base of the ulcer. Occasionally a small patch of epithelium became isolated from the rest of the stratum by a circle of large follicles. Progressive enlargement of these follicles seems to destroy the muscularis mucosae and the epithelium becomes pegged down. Subsequent change consists of irregular hyperplasia of the glandular structures of the isolated portion of the mucosa. By the continuation of this process the cells become more primitive in type with changes taking place in the epithelium. Traction, possibly by the passage of fecal material over the surface of the epithelium, causes the structure to become elongated and extrude farther into the intestinal lumen. In this way, a more or less definite polyp would form.

These observations show the changes that occur in the tissue surrounding a cancer of the colon. The

changes consist primarily of the enlargement of the lymphoid aggregations in the submucosa with resultant damage to the muscularis mucosae. The subsequent development of large encapsulated follicles with secondary centers produces associated changes in the epithelial cells. How frequently the pathogenesis of polyps occurs in this manner, of course, it is hard to say.

The third and commoner and more clearly understood way of the development of polyps is that following such an inflammatory disease as ulcerative colitis. This, as you know, can be a devastating and destructive disease. In the severe and destructive disease, the mucous membrane looks as if it were literally torn to shreds and tatters. Often I have inserted my finger into the rectum of patients with ulcerative colitis in whom it was difficult to find the actual lumen of the bowel, there being so many side passages where the mucosa had been deeply ulcerated and denuded. The whole lining of the large intestine may be similarly affected, as attested by carefully done roentgenologic examinations. As the healing then proceeds, there develop curled-up mucosal tags and bits of mucous membrane, largely represented by granulation tissue. Sometimes these tags are attached at both ends, forming bridges, and generally, except for the destruction between them, resembling grossly the appearance of polyps.

Polyps that follow ulcerative colitis can be classified into three types: Pseudoadenomatous, adenomatous and carcinomatous. Microscopically, the polyps vary in size from a few millimeters to as much as 3 cm. or more in diameter. They appear as protruding tufts of mucosa in areas that are otherwise devoid of any mucous membrane. They occasionally have the appearance of exuberant outgrowths from the already diseased mucosa.

In the so-called pseudoadenomatous polyps, there are structures ranging from small tags of granulation tissue with more or less complete absence of mucosa, to large pedunculated polyps several centimeters in diameter, composed largely of hyperplastic glands. The important criterion in this classification is not the amount of glandular tissue in the polyps, but rather the cytologic structure of the individual gland. The polyps often appear adenomatous at first glance, but on more detailed scrutiny glandular hyperplasia is recognized as a benign, regenerative process. This is evidenced by the orderly arrangements of the lining cells in which the normally staining nuclei are lined along the basement membrane with an overlying layer of clear cytoplasm. Frequently in them, large cystic glands are seen. In other words, some of the pseudoadenomatous polyps are hyperplastic, but their hyperplasia is an orderly

functional response to the underlying stimulus, inflammation. The term "pseudoadenomatous" is applied to this group to indicate that evidence of tendency toward neoplastic change is lacking. This is the group frequently called "pseudopolyps" of colitis.

In the second group, adenomatous hyperplasia is recognized. In these, the size ranges from small fingerlike projections of granulation tissue containing only a few glands to large pedunculated and sessile polyps. They usually are larger and possess a more exuberant character than the pseudoadenomatous polyps, but exceptions to this are noted. Adenomatous changes in the glands are manifested by increase in size, abnormally deep staining and malalignment of the nuclei, numerous mitotic figures, diminution of the amount of the cytoplasm, and diminution of the amount of mucus produced. At times, these changes are slight and are distinguished with great difficulty from the more advanced types of pseudoadenomatous hyperplasia.

On the other hand, advanced adenomatous hyperplasia involves a fine distinction from carcinoma in situ. Carcinomatous polyps are usually relatively larger than adenomatous polyps. They present a dusky red, hemorrhagic appearance, which immediately arouses suspicion of their malignant nature. However, in some instances, carcinoma in situ is discovered in small adenomatous polyps. Thus, we have polypoid structures resulting from extensive inflammation and destruction of mucous membrane. In some cases, and in fact in most, these polyps are only the tags of mucous membrane remaining after denudation of most of the mucosa. As healing occurs, they retract and eventually become smaller. There are, however, exceptional polyps in which adenomatous and finally carcinomatous change may occur. It is most important that these two groups of polyps be differentiated carefully, by macroscopic and sometimes by microscopic examination.

A fourth factor to be considered in the pathogenesis of polyps of the intestine is the hereditary or familial factor. Cripps⁷ is credited with recording the first observation that two members of the same family might have polyps of the rectum. Since this report, many isolated family histories have been recorded. Some of these reports have involved two or three members of one generation or two or three generations who have had polyps of the colon. Such reports, of course, are of limited value, but they hint at the familial origin of polyps. Even larger families, as the one which I shall show in this report, are of little value as far as human genetics is concerned. They are of limited value principally because family histories are notoriously inaccurate and not often can enough information concerning the general health of the family be obtained. The family on

which data were collected by my colleagues, Friedell and Wakefield,¹⁰ is illustrative of the point. Their data, as well as reports of many similar families collected from all over the world, indicate that this is a hereditary factor as far as the occurrence of polyps of the large intestine is concerned. These polyps are epithelial proliferations which are potential carcinomas. My colleagues and I have collected data on numerous such families and we have followed some of them through three, four or five generations. We have found, for instance, that one German forebear, whose descendants settled in Winona, Rochester and St. Paul, Minnesota; Milwaukee, Wisconsin; Cincinnati, Ohio, and several other German communities, left progeny in whose families several and sometimes many members developed polyps. These families can be definitely traced through three and four generations to this German ancestor. It was relatively easy to make family trees of this family up to and through these four generations. They yielded a striking illustration of the importance of the hereditary factor.

When this hereditary factor is present, the tendency is transmitted by both males and females, a fact which is shown in the case which I am illustrating. Inheritance has been traced through several generations. However, about half of the patients with this disseminated polyposis who have been seen at the Mayo Clinic have not had this hereditary factor, or at least it could not be ascertained. When the hereditary tendency does exist, it does not produce any known genetic pattern. It is not sex-linked, and is neither a mendelian dominant nor a recessive. These observations are of interest but rather tend to minimize the importance of the familial or hereditary factor. They do stress, however, that this factor is of importance in a substantial number of cases. In some families, this factor presents a most striking illustration of the value of careful inquiry into the family history.

LOCATION OF POLYPS

A few words should be said about the location of polyps of the intestine. It is readily understood that the polyps of the familial type are disseminated polyps or represent so-called diffuse polyposis. At times, those which are multiple may be found in any portion of the large intestine, and sometimes cover the entire mucous membrane so that one may speak of polyposis *en nappe* just as one speaks of this in the stomach. This is a condition in which the entire mucous membrane is more or less polypoid. In the polyposis secondary to ulcerative colitis, the polypoid changes may be disseminated throughout the large intestine; but even in this, inasmuch as the disease is more severe and more prevalent in the



Figure 1.—Unusual pigmentation of the lips of a patient with polyps disseminated throughout the digestive tract.

distal than in the proximal segment, so too the secondary polyposis is commoner there. However, except for these conditions, the polyps of the large intestine are inclined to occur in the rectum and sigmoid portion of the large intestine, so that the vast majority of them can be felt with a finger or seen through a sigmoidoscope. The location is similar to that of frank carcinoma, which occurs well within the reach of a sigmoidoscope in about 70 per cent of the cases.

There is, however, another type of adenomatous polyp which may occur anywhere in the intestinal tract, from the duodenum down to the anus. It is associated with other rather unusual changes. The condition is rare. The polyps are inclined to occur in the small intestine, although they may occur at any point of the intestinal tract. They may even occur in the stomach. It is a condition quite different from the so-called familial polyposis, although the disease seems to be hereditary and many members of the same family may be involved.

The history is usually that of a young adult who has intermittent colicky, abdominal cramps, or even episodes of intestinal obstruction, sometimes associated with rectal bleeding and vomiting. Associated with these symptoms, there is an unusual pigmentation of the skin, particularly of the mucous membrane, lips (Figure 1), tongue and cheeks. Peutz,²⁵ of Holland, described the condition and Jeghers, McKusick and Katz¹⁵ of this country described it in more detail in 1949. The condition has come to be known as "Jeghers-Peutz syndrome." Up to 1955, fewer than 30 cases of the condition had been reported in the literature. My colleagues and I have not seen more than four or five patients with the disease at the Mayo Clinic. Of course it is quite possible that the condition was overlooked in the past. It seems obvious that the condition is one definitely at variance with so-called familial polyposis.

Polyps of the small intestine, in general, are very rare. This is in line with the relative rareness of neoplastic lesions of the small intestine generally. Paren-

thetically, I might say that in a ten-year period during which we saw 5,900 cases of carcinoma of the stomach and 7,200 cases of carcinoma of the large intestine, we saw only 132 cases of carcinoma of the small intestine at the Mayo Clinic, and I believe that the relative ratio of adenomatous polyps in the small intestine is similar to that of carcinoma.

INCIDENCE

Many observers have reported on the incidence of polyps of the intestine. Most of the data have been on the basis of necropsy reports. Unfortunately these examinations were not divided according to age groups and so the incidence has been reported far too low. In the series of 241 cases, previously mentioned, in which the colon was examined postmortem by Atwater and myself,¹ there were polyps in 166, an incidence of 69 per cent. This, of course, is much higher than we had expected or than any that had been previously reported. I mentioned before that no polyps were observed until the fourth decade of life and the appearance was most frequent in the sixth and eighth decades. This would make it obvious that polyps of a single or multiple type are inclined to occur in the older age group.

It is obvious and many investigations have proved that a person often has adenomatous lesions of the colon without having symptoms. My colleagues and I undertook an investigation in 1948 to obtain information regarding the value of routine proctosigmoidoscopic examination. This study was conducted by Hauch, Buie, Smith and myself¹² over the period from April 6, 1948, to January 6, 1950, inclusive. During this time, proctosigmoidoscopic examinations were conducted on 2,161 patients from two of the sections of internal medicine at the Mayo Clinic, a section which deals chiefly with enterologic conditions and a section where attention is given, regardless of the nature of the complaints, to patients who live in the immediate vicinity of Rochester. The former dealt with patients who often complain of gastrointestinal conditions and the latter with patients of the type usually seen in a general medical practice. None of the 2,161 patients who formed the basis of our investigation had any symptoms referable to the intestine, such as bleeding, diarrhea, hemorrhoids, abdominal cramps, or change in bowel habits. However, on careful analysis of the records at the end of the 21 months, it was found that only 1,919 were entirely free of symptoms referable to the colon and rectum. The incidence of rectal and sigmoidal adenomas among the 1,919 patients who had no symptoms referable to the colon and rectum was 8.1 per cent. When these patients were grouped according to age, it was observed that there was a progressive rise in the incidence of adenomas from

the second to the eighth decade of life. It was also found that the incidence of these polyps was twice as great among men as among women.

Of the 156 patients who had adenomas, 119 had solitary lesions and 37 had more than one. Of the solitary adenomas, 57 per cent were found in the sigmoid and 33 per cent in the rectum. The diameter of all but ten of the growths was less than 1 cm. Among the larger adenomas, examined histologically, the pathologist reported "low-grade 1 adenocarcinoma in an adenoma." This study brings to our attention the fact that beyond the age of 30 years there is an increasing incidence of rectal and sigmoidal adenomas.

In patients with diffuse polyposis the situation is quite different. Since an appreciable number of these patients (at least one half according to our calculations and observations) are born with the hereditary tendency to polyposis, the mucosal change occurs somewhere in the first or at least in the second decade of life. How long such patients go about with polyps in their intestines before they seek the aid of a physician, of course, is unknown, but the common time when they come for help is in the third decade of life. They come because of rectal bleeding. This may be due to one of two causes, either a simple irritation of the adenomatous polyps or the development of carcinoma. The latter is the likely occurrence. Commonly when these patients are first seen and examined, carcinoma is already present. Frequently, there are more than one, and often, many. Thus, the incidence of these polyps in contrast to the single or multiple adenomas is in the early years of life.

In the case of the polyps occurring in patients with ulcerative colitis, the situation is somewhat as follows. The disease commonly occurs in the second and third decades of life. It may be very severe, or fulminating, and when it heals the mucosal tags known as polyps are left in its wake. These polyps usually occur in the second and third decades of life.

DEVELOPMENT OF CARCINOMA

The determination as to whether or not a lesion which is diagnosed as entirely benign may ultimately become malignant rests on clinical grounds alone. There is no good method based on morphology alone which will determine whether a benign neoplasm will develop malignant characteristics in the years to come. I shall use the term "precancerous" advisedly for this reason. However, the accumulative evidence that an adenomatous polyp can develop into a carcinoma is so overwhelming that it is difficult of denial. The transition from benign to malignant has been traced and seems now to be an actuality rather than an unsupported hypothesis. It

would be a nearly impossible task to determine the course of an individual adenoma of the large bowel without repeated observations of its change from adenoma to carcinoma.

As long ago as 1935, Buie and Brust reported data on a group of 143 patients with polyps of the rectum and rectosigmoid discovered by sigmoidoscopic examination. In those days the importance of destroying all of these polyps by electrocoagulation was not as evident as it is today and 87 of the 143 patients did not have this treatment. Fifty-five of these 87 patients were examined again after an interval of five or more years. In three, the untreated adenoma was found to be larger at the second examination than at the first. In four, there was a carcinoma at the exact site of the previously noted adenoma. Here there were four instances of apparent transition from apparent benign to outright malignant growth. I looked up the record of one of these patients. He was examined at the age of 60 years in 1926, at which time a polyp 4.5 by 2 cm. in size was observed at 12 to 13 cm. above the pectinate line. On the second examination in September, 1949, a rather large carcinoma at this site was noted. A specimen removed from this showed it to be an adenocarcinoma, grade 2.

When a diagnosis of diffuse or familial polyposis is made, it is customary to inquire into the family history of the patient. If he has children or brothers and sisters who are asymptomatic, they are advised to undergo proctoscopic and roentgenologic examinations of the colon. Not infrequently the same condition is found in these relatives. If they are children in the first decade of life, they probably have no symptoms, and the polyps are of a benign adenomatous type. However, in the second or third decade of life, symptoms develop. Frequently in patients of that age, at the time of the removal of the colon it will be found to have multiple carcinomas in the field of diffuse adenomatosis. I have spoken of the three types of polyps occurring in the wake of ulcerative colitis. The malignant type is very rare, but I believe that at this point it is well to make some comments on the incidence of carcinoma in ulcerative colitis. How frequently this eventuates through the course of adenomatous polyps it is difficult to say, but its occasional occurrence is apparent.

We have studied data on a group of 2,000 patients with chronic ulcerative colitis who were examined at the Mayo Clinic between January 1, 1918, and December 31, 1937, inclusive. Of these, 1,564 patients³ were less than 50 years of age at the time of diagnosis of chronic ulcerative colitis at the clinic, had been traced for a year or more after the diagnosis had been made, and had been free of malignant lesions for at least a year. Of these 1,564 patients, 98 had died of carcinoma, as compared with 27

TABLE 2.—Chronic ulcerative colitis: Comparison of observed deaths from malignant neoplasm of the colon with expected deaths in the general population*

Age at Diagnosis, Years	Traced Patients	Person- Years Exposed	Expected (E) Deaths†		Observed (O) Deaths: Malignant Neoplasms of the Rectum and Colon	Ratio of Observed to Expected Deaths	
			Total Malignant Neoplasms (E-1)	Malignant Neoplasms of Digestive Organs and Peritoneum (E-2)		O:E-1	O:E-2
2 to 4.....	8	132.5	0.010	0.001	1	85.5	650.0
5 to 9.....	25	304.0	0.025	0.002	5		
10 to 14.....	65	863.5	0.117	0.017	7		
15 to 19.....	127	1,424.5	0.280	0.050	12	42.9	240.0
20 to 24.....	219	2,609.5	0.938	0.208	11	11.7	52.9
25 to 29.....	294	3,945.5	2.845	0.767	17	6.0	22.2
30 to 34.....	301	3,911.5	4.478	1.342	15	3.3	11.2
35 to 39.....	229	3,151.5	5.746	1.930	9	1.6	4.7
40 to 44.....	166	2,144.5	5.702	2.107	15	2.6	7.1
45 to 49.....	130	1,738.5	6.631	2.676	6	0.9	2.2
Total.....	1,564	20,225.5	26.772	9.100	98	3.7	10.8

* Reproduced by permission from Gastroenterology, 26:32, Jan. 1954.
† Expected deaths calculated from U. S. death rates for 1949 in Vital Statistics.

expected deaths from malignant neoplasms of all sites and nine expected deaths from malignant neoplasms of digestive organs and peritoneum (Table 2). Obviously, the expected number of deaths from malignant neoplasms of the rectum and colon is less than nine, say three or four deaths; on this basis, the ratio of observed to expected deaths would be about 20 or 30 to one.

The impressive data of this study do not concern themselves with the total number of patients with cancer, but rather with the fact that the cancer occurred in patients with ulcerative colitis on the average 20 to 30 times more frequently than in members of the general population of similar age groups. One must remember, however, that this frequency is greatly increased by the fact that in 13 patients of this group carcinoma developed before the age of 15 years, which is an age when carcinoma almost never occurs in ordinary persons. If these 13 are taken from the list, the ratio of observed to expected is somewhat reduced. It must further be recognized that the average patient with chronic ulcerative colitis in this series was 31 years of age and he had a better than 50 per cent chance of living 25 years. It is not known in what percentage of these patients the development of the carcinoma went through the stage of adenoma and carcinoma subsequently, but it would be safe to assume that the number taking that course was small. Carcinoma in these patients is inclined to develop in a very different manner.

TREATMENT

This rather gloomy story of polyps, from the standpoint of frequency, the limited possibility of early detection, and the considerable possibility of eventuation into carcinoma, should stimulate clini-

cians and surgeons to devise ways and means of diagnosing these lesions in their incipency. Once the diagnosis is made, the treatment is very satisfactory. This is in rather sharp contrast to so many other conditions coming to the attention of physicians, in which diagnosis may be made readily enough but satisfactory treatment is not at hand. In the discussion of polyps, the situation is quite the reverse and treatment can be outlined in a few words. When an adenomatous polyp is discovered, it should be destroyed. When the polyp is single or when only a few are present, and when they can be visualized through a sigmoidoscope, simple electrocoagulation is the treatment of choice. When they are found roentgenologically and there are many of them, subtotal colectomy and ileosigmoidostomy or ileoproctostomy are the procedures of choice. The remaining polyps in the rectum and in the field visible through a sigmoidoscope can be destroyed after the major operation is completed. If one or two polyps are discovered roentgenologically, removal by transcolonic excision is frequently all that is necessary. This is certainly preferable to subtotal colectomy if that operation can be avoided.

And now we come to that subject which still represents some controversial features, although the latter should not be so: Namely, the subject of the polyps occurring in the wake of ulcerative colitis. In some of these cases, ileostomy and colectomy will be the treatment of choice. In the majority, this will not be so. Most of the polyps, as was indicated before, occurring in the wake of ulcerative colitis are simply mucosal tags which, as the disease heals, shrink to a smaller size and sometimes to obscurity. However, the patient who has recovered from ulcerative colitis and who has polyps after the bowel has healed should be examined from time to time. I have made

it a custom to do this every six months until the patient is symptom-free.

I have some patients, one man in particular, who have the entire lining of the bowel studded with these mucosal tags. I have seen this man periodically for 25 years. In the particular case mentioned there are no signs or symptoms of development of any change, except that the tendency has been for these polyps to become smaller. An illustration of this kind brings home dramatically the fact that not all patients with polyposis secondary to ulcerative colitis should undergo colectomy. In our rather extensive experience with ulcerative colitis, I have yet to see the first patient who would prefer ileostomy to the form of bowel function by the normal passage. Ileostomy is an operation which affords unpleasant handicaps, handicaps which are accepted when they are necessary, but which nobody cares for unless they are necessary. In many of these patients when the rectum heals, the mucosal tags can be fulgurated in anticipation of more major operation later. In some of these, we have been able to perform ileosigmoidostomy later when there was some change in the polyps proximal to these points. Most patients with mucosal tags or so-called polyps of ulcerative colitis are better observed once they are symptom-free.

While the treatment of polyposis is relatively well standardized, its success will be proportional to the judgment of the physician making the decisions about appropriate treatment.

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REFERENCES

1. Atwater, J. S., and Bagen, J. A.: The pathogenesis of intestinal polyps, *Gastroenterology*, 4:395, May 1945.
2. Bagen, J. A., Cromar, C. D. L., and Dixon, C. F.: Early carcinoma of the colon. II. Relation between subclinical inflammatory processes and carcinoma, *Arch. Surg.*, 43:192, Aug. 1941.
3. Bagen, J. A., Sauer, W. G., Sloan, W. P., and Gage, R. P.: The development of cancer in chronic ulcerative colitis, *Gastroenterology*, 26:32, Jan. 1954.
4. Broders, A. C.: Personal communication to the author.
5. Buie, L. A., and Brust, J. C. M.: Solitary adenomata of the rectum and the lower sigmoid, *Tr. Am. Proct. Soc.*, 1935, p. 57.
6. Coffey, R. J., and Bagen, J. A.: Intestinal polyps: Pathogenesis and relation to malignancy, *Surg., Gynec. & Obst.*, 69:136, Aug. 1939.
7. Cripps, W. H.: Two cases of disseminated polypus of the rectum, *Tr. Path. Soc., London*, 33:165, 1881-1882.
8. Erdmann, J. F., and Morris, J. H.: Polyposis of the colon: A survey of the subject, *Surg., Gynec. & Obst.*, 40:460, April 1925.
9. Ewing, J.: *Neoplastic Diseases: A Treatise on Tumors*. Ed. 3, Philadelphia, W. B. Saunders Company, 1928, 1127 pp.
10. Friedell, M. T., and Wakefield, E. G.: Familial polyposis of the colon, *J.A.M.A.*, 121:830, March 13, 1943.
11. Genkin, I. I., and Dmitruk, J. D.: Über die Wirkung von Teer auf die Darmschleimhaut des Kaninchens. *Ztschr. Krebsforsch.*, 27:352, 1928.
12. Hauch, E. W., Buie, L. A., Bagen, J. A., and Smith, L. A.: Adenoma of the rectum and sigmoid colon: Incidence revealed by proctosigmoidoscopic examination of a group of patients free of complaints referable to the colon and rectum, *Gastroenterology*, 16:669, Dec. 1950.
13. Hoelzel, F., and Da Costa, E.: Experimental production of polyposis of the colon in rats, *Am. J. Digest. Dis. & Nutrition*, 4:23, 1937.
14. Hurst, A. F.: Ulcerative colitis, *Guy's Hosp. Rep.*, 85:317, Jan. 1935.
15. Jeghers, H., McKusick, V. A., and Katz, K. H.: Generalized intestinal polyposis and melanin spots of the oral mucosa, lips and digits: A syndrome of diagnostic significance, *New England J. Med.*, 241:993, Dec. 22; 1031, Dec. 29, 1949.
16. Kennedy, R. L. J., and Weber, H. M.: Polyposis of the colon in children, *Am. J. Dis. Child.*, 42:69, July 1931.
17. Lebert: Quoted by Hewitt, J. H., and Howard, W. T.: Chronic ulcerative colitis with polyps: A consideration of the so-called colitis polyposa (Virchow), *Arch. Int. Med.*, 15:714, May 1915.
18. Lockhart-Mummery, J. P.: The causation and treatment of multiple adenomatosis of the colon, *Ann. Surg.*, 99:178, Jan. 1934.
19. Lockhart-Mummery, J. P., and Dukes, C.: The precancerous changes in the rectum and colon, *Surg., Gynec. & Obst.*, 46:591, May 1928.
20. MacCarty, W. C.: Chronic gastric ulcer and gastric carcinoma: A study of 507 simple chronic ulcers and 895 carcinomatous ulcers, *Am. J. Roentgenol.*, n.s., 7:591, Dec. 1920.
21. MacCarty, W. C.: The genesis of cancer, *Proc. Staff Meet.*, Mayo Clin., 12:295, May 12, 1937.
22. Mayo, C. W., and Wakefield, E. G.: Disseminated polyposis of the colon: A new surgical treatment in selected cases, *J.A.M.A.*, 107:342, Aug. 1, 1936.
23. McKenney, D. C.: Multiple polyposis of colon: Familial factor and malignant tendency, *J.A.M.A.*, 107:1871, Dec. 5, 1936.
24. Menzel: Quoted by Hewitt, J. H., and Howard, W. T.: Chronic ulcerative colitis with polyps: A consideration of the so-called colitis polyposa (Virchow), *Arch. Int. Med.*, 15:714, May 1915.
25. Peutz, J. L. A.: Quoted by Jeghers, H., McKusick, V. A., and Katz, K. H.¹⁵
26. Rankin, F. W.: Total colectomy; its indication and technic, *Tr. Am. S. A.*, 49:263, 1931.
27. Ribbert: Quoted by Feyrter, F.: *Zur Geschwulstlehre (nach Untersuchungen am menschlichen Darm)*. I. Polypen und Krebs. *Beitr. path. Anat.*, 86:663, 1931.
28. Robertson, H. E.: Ulcerative gastritis and residual lesions, *J.A.M.A.*, 112:22, Jan. 7, 1939.
29. Rokitsky, C.: Quoted by Woodward, J. J.⁴¹
30. Saint, J. H.: Polypi of the intestine: With special reference to the adenomata, *Brit. J. Surg.*, 15:99, July 1927.
31. Schmieden, V., and Westhues, H.: *Zur Klinik und Pathologie der Dickdarmpolypen und deren klinischen und pathologisch-anatomischen Beziehungen zum Dickdarmkarzinom*, *Deutsche Ztschr. f. Chir.*, 202:1, 1927.
32. Sloan, W. P., Jr., Bagen, J. A., and Gage, R. P.: Life histories of patients with chronic ulcerative colitis: A review of 2,000 cases, *Gastroenterology*, 16:25, Sept. 1950.
33. Spriggs, E. I., and Marxer, O. A.: Multiple diverticula of the colon, *Lancet*, 1:1067, May 21, 1927.
34. Struthers, J. E.: Multiple polyposis of the intestinal tract, *Ann. Surg.*, 72:649, Dec. 1920.
35. Susman, W.: Polypi coli, *J. Path. & Bact.*, 35:29, 1932.
36. Swinton, N. W., and Warren, S.: Polyps of the colon and rectum and their relation to malignancy, *J.A.M.A.*, 113:1927, Nov. 25, 1939.
37. Verse: Quoted by Ewing, J.⁹
38. Virchow: Quoted by Wesson, H. R., and Bagen, J. A.⁴⁰
39. Wagner, J.: Quoted by Woodward, J. J.⁴¹
40. Wesson, H. R., and Bagen, J. A.: Classification of polyps of the large intestine, *Proc. Staff Meet.*, Mayo Clin., 9:789, Dec. 26, 1934.
41. Woodward, J. J.: Pseudopolypi of the colon; an anomalous result of follicular ulceration, *Am. J. M. Sc.*, 81:142, Jan. 1881.
42. Yeomans, F. C.: Adenomata: Relation to rectocolonic carcinoma, *New York J. Med.*, 37:390, Feb. 15, 1937.

Surgical Planing of the Skin

Evaluation of a Method for Reducing Scars and Other Defects

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CUTANEOUS DEFECTS of the face or other exposed areas can affect the mental stability of children and adults alike. These abnormalities are of importance because they may result in personality changes and be a distinct social or economic handicap. The dermatologist or other physician who underestimates the psychological influence of such defects does the patient a grave injustice. The improvement of scars from acne, trauma or other disease, and the removal of pigmentations and certain congenital and acquired abnormalities can now be effectively accomplished with a technique of planing by a rotary wire brush.

HISTORY

Twentieth century dermatologists have commonly employed electrodesiccation, carbon dioxide snow, liquid nitrogen, trichloroacetic acid, phenol and a variety of other agents in the treatment of some of the above conditions. The results have varied according to the skill and patience of the individual physician.

Cosmetic surgery became an important part of dermatology in the early 1900's when Kromayer¹⁰ adapted hand and motor-powered instruments to dermatologic operations. He employed rotary steel burrs in an attempt to remove a number of congenital and acquired abnormalities of the skin. Although he became quite adept in their use, his techniques were not widely practiced. Sandpaper abrasion for traumatic tattoos and acne pits of the face was reported by Iverson⁹ in 1947 and McEvitt¹⁴ in 1950. As a routine treatment it presented certain disadvantages in that it required hospitalization and general anesthesia. Kurtin¹¹ in 1953 reported on corrective surgical planing of the skin for acne scars and other skin defects in 273 patients. After five years of trial he developed a successful modification of the abrasion technique. This modification provided a simple office procedure employing local anesthesia with ethyl chloride and a motor-driven stainless steel wire brush. Since this initial report by Kurtin, a wave of enthusiasm productive of a number of

• Skin defects such as pitted acne scars, unsightly moles and birthmarks, and other disfiguring skin deformities can be effectively corrected with good cosmetic results. This is accomplished as an office procedure by abrading or planing the skin with a rapidly rotating wire brush using a local anesthetic. The treatment does not require hospitalization and is relatively simple and painless.

reports^{1, 3, 4, 5, 8, 15} has spread throughout the country. Dermatologists, plastic surgeons and other specialists are utilizing this and similar techniques on a wide scale for the improvement (not necessarily the complete removal) of scars and cutaneous defects.

During the past two years the author has used the abrasion technique—so-called dermabrasion¹—described by Kurtin,¹¹ in which abrasion is made with a rapidly rotating wire brush held perpendicular to the skin surface. The accompanying photomicrographs (Figure 1) obtained from repeated biopsies following dermabrasion, show that the entire epidermis and a portion of the corium is removed by the abrading action of the wire wheel. Within a few days, a firmly adherent inflammatory crust forms over the planed surface. The epidermis then rapidly regenerates from the follicular epithelium and is essentially complete on the eighth or ninth day.

OPERATIVE TECHNIQUE

Fifteen minutes before the procedure an analgesic agent is administered subcutaneously. At first Demerol® (meperidine hydrochloride) was used, but it had the disadvantage of rather slow onset and a longer duration of action than was desired. Later, 30 mg. of Nisentil® (1,3-dimethyl-4-phenyl-4-propionoxy-piperidine hydrochloride [dl- α form]) administered subcutaneously, proved to be a more suitable agent in that it has a rapid onset of action and its major effect is over in two hours. The patient is then capable of leaving the office without disturbed sensorium or excessive drowsiness.

The face is thoroughly cleansed with a liquid germicidal detergent and cold packs are applied to the operative site. The specific areas for abrasion are painted with a solution containing 1 per cent gentian

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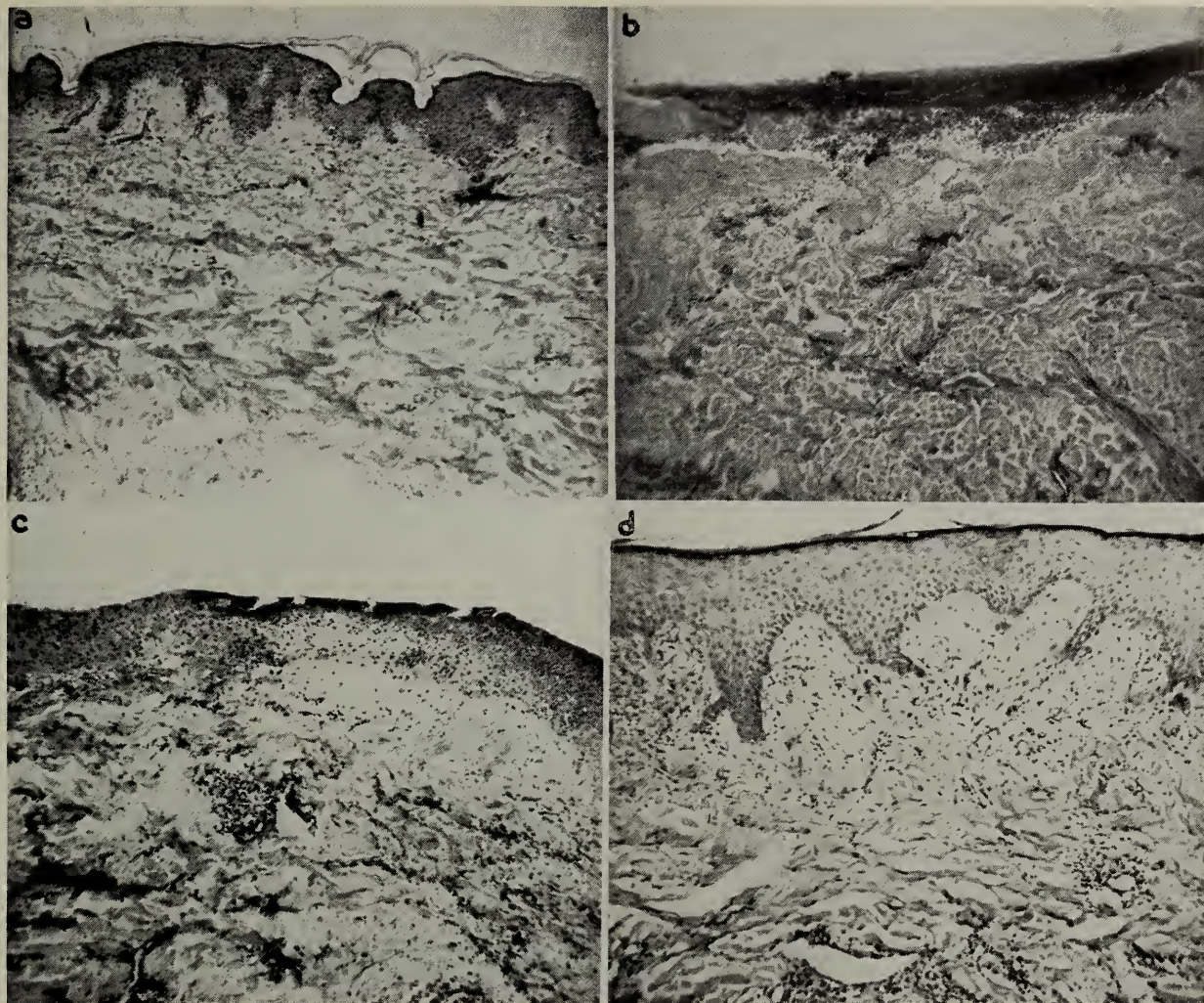


Figure 1.—Photomicrographs ($\times 50$) of biopsies taken before and after surgical planing of the skin for acne scars. (a) Before planing; (b) immediately after planing to show removal of the epidermis and upper corium; (c) three days after planing to show formation of the inflammatory crust; (d) epidermal regeneration is complete on the eighth day.

violet in 10 per cent alcohol in order to delineate the depth of individual scars and the extent of the operative field.⁸ When working on the face, a rubber dam⁷ or lead shields are placed over the eyes of the patient as a precautionary measure, and ear and nose orifices are plugged with cotton. Although Kurtin and others have employed a mounted blower to accelerate evaporation of the volatile anesthetic and hence the freezing of the skin, the author has found a jet of compressed air equally effective. Ethyl chloride is sprayed in a coarse stream onto a portion of the area to be treated, and freezing to board-hardness occurs in about 30 seconds. Recently, the author has been using the refrigerant-anesthetic, dichlorotetrafluoro-ethane (Freon 114),¹⁵ but to date, from a technical standpoint, has not found it as effective. In contrast to ethyl chloride, which can be irritating and toxic, Freon is noninflammable, relatively non-toxic and has no general anesthetic properties.

When the anesthetized site is solidified, the skin is then planed or abraded with a motor-driven rapidly rotating (12,000 revolutions per minute) stainless steel wire brush. The rotating brush is moved rapidly across the skin at right angles to the plane of the brush. Pressure is applied to the skin during the abrasion, but only experience can dictate the extent and degree. Too much pressure or too slow movement across the skin can result in gouging or grooving. Approximately three square inches of skin is solidified and abraded at a time and, if indicated, the entire face is treated at one session in the office. Following the abrasion there is mild oozing and bleeding from the treated sites for ten to twenty minutes. No serious loss of blood has occurred to date. Dry gauze sponges are applied and the patient is permitted to lie at rest. When most of the oozing and bleeding has stopped, the face or other site is redressed with dry sterile sponges held in position

by Scotch tape. No vaseline gauze or antibiotic ointment is used. Approximately two to three hours elapses between arrival and departure of the patient from the office. Postoperatively, the patient is instructed to change the bandages immediately on arriving home and then every two hours until bedtime, when all are removed. They are not reapplied at any time during the healing period. A crust forms in approximately three days and usually separates in ten days. Moderate edema of the entire face or treated site can be expected during the first 48 to 72 hours after operation. Any discomfort is usually controlled by acetylsalicylic acid.

Following the separation of the crust, the skin is soft, sensitive and erythematous. This erythema fades in three to eight weeks and the new skin gradually blends with the adjacent untreated areas. The healed sites are fresh in appearance, soft, pliable and without external evidence of cicatrization. Depending upon the process being treated, the entire procedure can be repeated any time after six weeks. Three or four planings may be indicated in deep acne scarring to obtain maximum improvement, but in the majority of disorders sufficient improvement is obtained after a single planing.

RESULTS

Surgical planing is useful for treating some developmental skin defects which were formerly untreatable. Scars that have resulted from injury or previous disease may be made considerably less noticeable by use of the technique.

Careful selection of the patient for this procedure is of utmost importance, and the individual's mental attitude should be evaluated in relation to his disease process. The entire procedure should be thoroughly discussed with the patient beforehand, and it is imperative that the physician avoid exaggerated claims. To predict total removal of a scar or defect and then not accomplish it can throw a patient into an episode of mental depression. Corrective surgical planing of the skin is not a cure-all, but from the patient's point of view it has been accepted with enthusiasm and satisfaction. What may appear objectively to the physician to be a minor improvement, is more often than not a major improvement to the patient.

For evaluation of results, black and white photographs and 35 mm. kodachrome transparencies are taken before and after the procedure. These are helpful in discussing the final result both subjectively and objectively. It must be borne in mind, however, that in a photograph a superficial cutaneous defect can be made to appear greatly improved or even be made to appear worse by merely shifting lights to make shadows on the cutaneous surface.

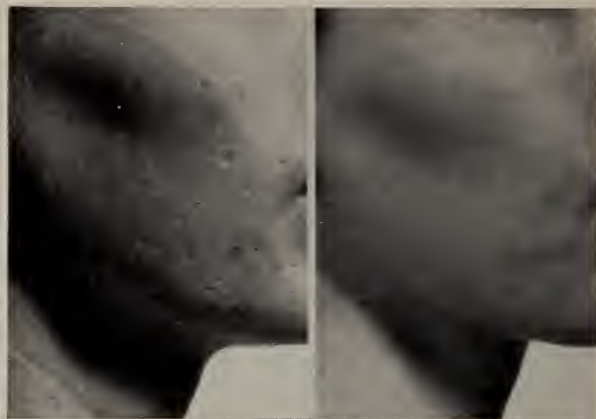


Figure 2.—*Left:* Before surgical planing of acne scars on cheek. *Right:* After therapy.

During the past two years, a number of cutaneous defects have been satisfactorily treated.

Acne scars. Some degree of improvement can be obtained in almost every instance of acne scarring. The degree of improvement, however, depends upon the type and depth of scars and the number of planings as well as the depth to which the physician abrades. Results are frequently satisfactory after a single planing, but in some instances two to four planings may be indicated. In no instance have keloids or postoperative infection resulted. Mild acne activity is not a contraindication and, in many patients, acne lesions do not reappear in the planed areas. In those persons having hundreds of small comedones and milia in association with acne, dermabrasion successfully removes these and leaves a flat, smooth surface (see Figure 2).

Chickenpox, smallpox, herpes zoster and herpes simplex scars are more successfully abraded than are acne scars. Since they are shallow and soft-walled, one or possibly two planings provide a satisfactory result to both patient and physician.

Superficial accidental tattoo marks can be abraded successfully. In decorative tattoos, however, the pigment is deposited more deeply in the corium and dermabrasion will frequently result in some scarring. Patients will occasionally prefer the scarring to the tattoo, but they should be informed of this disadvantage before the procedure is carried out.

Adenoma sebaceum. A single planing may remove all the lesions of adenoma sebaceum. The skin of a 13-year-old girl with small orange-red tumors of adenoma sebaceum on the face, of nine years' duration, was successfully abraded. When last observed some 12 months later the patient had no recurrence of lesions. Dermabrasion would seem the treatment of choice for this cutaneous defect (see Figure 3).

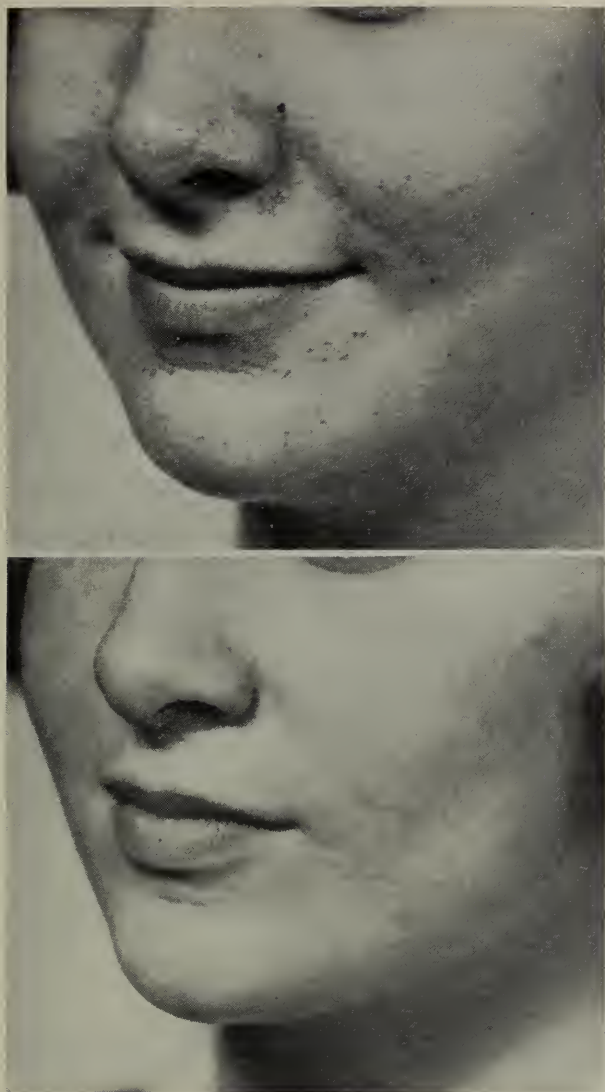


Figure 3.—Surgical planing of adenoma sebaceum on the face of a 13-year-old girl. Upper: Before therapy. Lower: After therapy.

Multiple benign cystic epithelioma may be similarly treated. Although the author has not planed a complete face for this disorder, in one case a small area was test-planed and the superficial lesions were effectively removed.¹³

Superficial wrinkles respond remarkably to a single planing. The regenerated skin is soft, pink and youthful in appearance. Results have been satisfying in almost every instance.

Keloids have been treated by planing deep into the corium as well as to skin level. Roentgen-ray therapy must follow the abrasion to prevent recurrence of the tumor. Ordinary keloids and those associated with acne have been treated but the author feels that, except in certain instances, not much is gained over surgical excision followed by x-radiation.

Traumatic hypertrophic and depressed scars have been successfully abraded. Complete removal has been virtually impossible but definite improvement is obtained in almost every instance.

Burn scars can be treated superficially to improve the surface irregularities, but deep removal should not be attempted owing to the absence of hair follicles and resultant slow healing.¹¹

Skin graft sites and some traumatic linear scars can be successfully treated.

Acquired hyperpigmentation and certain pigmentary defects can be planed with relative ease and with satisfactory result. Lentigines, ephelides and chloasma fall into this grouping.

Vascular nevi such as portwine stains (nevus flammeus) have been abraded by other physicians, with 50 to 70 per cent improvement in the average case.^{2,12} Prior to surgical planing, all therapy for this disorder when involving the face had been totally ineffective. In the author's experience, partial removal in one instance was satisfying and further abrasion is contemplated in the immediate future.

Pigmented nonvascular nevi, broad and linear nevi have responded to dermabrasion therapy.¹¹

Large disfiguring senile and seborrheic keratoses can be fully removed by dermabrasion. The final result with treatment by this means is usually more cosmetically acceptable than that seen with other commonly used therapeutic methods.

As surgical planing is adapted to additional entities and more experience is gained with each cutaneous disorder, definite indications and contra-indications will no doubt be established.

COMPLICATIONS AND SEQUELAE

No serious complications or sequelae have as yet been encountered during or after surgical planing of the skin. Those listed below are comparatively infrequent and merely mentioned for completeness to warn of their existence. That they do occur should in no way depreciate the value of dermabrasion.

No excessive loss of blood occurs during or after the procedure. In occasional patients the clinical manifestations of shock will develop immediately after the operation, but this is transient and rapidly disappears after a period of rest. At no time has it been necessary to institute therapy beyond rest.

Edema of the face or operative site can develop within an hour after the procedure and last as long as a week. The majority of patients, however, have only mild swelling of the face within 12 hours, which resolves itself without therapy in 72 hours. In one patient the edema was so massive as to cause

depression of the sensorium and complete closure of the eyelids for five days. Oral hydrocortisone therapy and cold packs aided its resolution. Surgical trauma and primary irritation from ethyl chloride are the factors that produce this postoperative edema.

Erythema following separation of the crusts is a normal consequence and gradually disappears in the majority of patients in four to six weeks. In an occasional patient, erythema may be more persistent and last as long as four months. Explanations have been given to account for this persistent erythema.⁴

Milia formation is not uncommon. It has been previously reported by other investigators.^{1,4} They can be removed simply and effectively with the sharp tip of a No. 11 surgical blade.

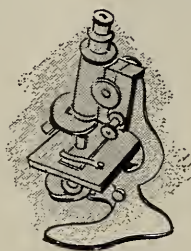
Hyperpigmentation of the planed sites has been occasionally observed, by the author and others^{1,4} a month or two following the procedure. It is usually mild and fades within a relatively short time without therapy. Delayed eczematous reactions and pyodermas have been reported,⁴ but the author has not observed them.

In conclusion, surgical planing of the skin or dermabrasion by one experienced with the technique is the treatment of choice for a number of cutaneous defects. It is a safe and highly effective office procedure for conditions in which there was previously no effective treatment.

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REFERENCES

1. Blau, S. J., and Rein, C. R.: Dermabrasion of the acne pit, *Arch. Dermat. and Syph.*, 70:754-766, Dec. 1954.
2. Blau, S. J.: Personal communication.
3. Burks, J. W., Jr.: Removal of scars by abrasion, an office procedure, *J. Louisiana State Med. Soc.*, 107:29-33, Jan. 1955.
4. Edelstein, A. J.: Sequelae following electrosurgical planing treatment for postacne scarring, *Arch. Dermat.*, 71:397, March 1955.
5. Eller, J. J.: Removal of pitted acne scars and other skin defects by surgical planing, *N. Y. State J. Med.*, 54:1166-1169, April 15, 1954.
6. Emich, J. P., Jr.: Nisentil—An obstetric analgesic, *Amer. J. Obs. and Gyn.*, 69:124-127, Jan. 1955.
7. Grais, M. L.: Protection against inhalation of fumes of ethyl chloride during surgical planing, *Arch. Dermat.*, 71:396, March 1955.
8. Hubler, W. R.: Comments on the technique of acne planing, *Arch. Dermat. and Syph.*, 70:513, Oct. 1954.
9. Iverson, P. C.: Surgical removal of traumatic tattoos of the face, *Plastic and Reconstructive Surgery*, 2:427-432, Sept. 1947.
10. Kromayer, E.: Rotationsinstrumente, ein neues technisches Verfahren in der dermatologischen Kleinchirurgie, *Dermat. Zeitschr.*, 12:26, 1905.
11. Kurtin, A.: Corrective surgical planing of skin, *Arch. Dermat. and Syph.*, 68:389-397, Oct. 1953.
12. Kurtin, A.: Personal communication.
13. Levy, S. W.: Skin planing of multiple benign cystic epithelioma, transactions of San Francisco Dermatological Society, *Arch. Dermat.*, 71:281, 1955.
14. McEvitt, W. G.: Treatment of acne pits by abrasion with sandpaper, *J.A.M.A.*, 142:647-648, March 4, 1950.
15. Wilson, J. W., Luikart, R., II, and Ayres, S., III: Dichlorotetrafluoro-ethane for surgical skin planing, *Arch. Dermat.*, 71:523, April 1955.



Surgical Planing of the Skin

Dichloro-tetrafluoro-ethane as a Freezing Agent

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SURGICAL PLANING (dermal abrasion) is a surgical procedure for the treatment of scarring due to acne, chickenpox, smallpox and trauma; multiple senile keratoses (sailor's or farmer's skin); fine wrinkling; and traumatic tattoos.

In 1953 Kurtin⁶ was the first to report a large series of patients upon whom ethyl chloride was used to render the skin rigid and locally anesthetized while abrasion with a motor-driven wire brush was carried out. Since that time there have been many enthusiastic articles on this subject. Since some disadvantages have been observed with the use of ethyl chloride, the authors have employed dichlorotetrafluoro-ethane as a freezing agent.

Planing is usually done as an office procedure, with an analgesic given before operation is begun. Meperidine hydrochloride (Demerol®), 75 to 100 mg., is satisfactory for this purpose. When an evaporative refrigerant is to be used for local anesthesia, refrigerated "pre-chilling" packs containing 5 per cent propylene glycol in water are applied for 15 to 20 minutes to reduce the stinging sensation caused by the initial application of the refrigerant. The areas to be treated are then scrubbed with gauze wetted with 70 per cent alcohol or an equivalent antiseptic. Gentian violet may be applied to sharply delineate the areas to be planed and to indicate to the operator that he has or has not planed to the level of the floor of pits. The procedure is accomplished in segments of about three inches in diameter. First a segment is sprayed with a liquid freezing agent, dichlorotetrafluoro-ethane¹⁰ (Freon 114® or Frigiderm®) which renders the skin area temporarily rigid and locally anesthetized, and provides a bloodless field during the planing. The skin is then abraded with a rotating, stainless steel wire brush or diamond chip fraise attached to a flexible cable from a motor whose speed is controlled by a foot rheostat. The freezing agent can be delivered from a separate spray-top container similar to that used for insecticides^{1,10} or supplied from a container mounted on the motor standard through a small tube parallel to

• Surgical skin planing is, in the hands of an experienced operator, a safe and highly effective procedure for treating a number of cutaneous defects, most notably pitted acne scars.

The operation is facilitated by the use of a new instrument (jet-spray handpiece) which allows the operator to freeze the skin and plane it almost simultaneously, and by a new freezing agent, dichlorotetrafluoro-ethane, which adds to the safety by eliminating the old hazards of inflammability, explosion, and the toxic inhalation of ethyl chloride.

The ability to sharply differentiate between keloid and hypertrophic scar is fundamental to surgical skin planing. A hypertrophic scar results from the removal or destruction of the cutaneous appendages (hair follicles, oil and sweat glands and ducts); whereas a keloid is an idiosyncratic response without regard to damage of the appendages.

Properly performed surgical planing does not entirely remove these appendages and therefore healing occurs without scarring.

the flexible shaft and delivered close to the revolving brush through a spray-forming tip attached to the handpiece ("jet-spray handpiece"). The refrigerant is usually applied for about 10 to 30 seconds, and its effects last for 30 to 40 seconds.⁹ The brush rotates up to 15,000 revolutions per minute at full speed, and the one most commonly used is approximately $\frac{3}{4}$ inch in diameter and $\frac{1}{8}$ inch in width. Motion of the hand in which the brush is held is always kept at right angles to the plane of the brush, for motion in the other direction might result in grooving. The entire area is planed by a succession of adjacent parallel linear strokes. This procedure is then repeated, crosshatching at an angle of about 30 degrees with the original strokes to obtain maximum evenness, and attention is given to the blending of adjacent segments. The depth of planing is diminished at peripheral margins—"feathered"—to prevent sharp demarcations.

Rubber gloves are of value for protection against the cold as well as for asepsis. Applying tension to the skin with the thumb and fingers of the hand not manipulating the instrument renders the operative area flat and tensed. Wearing a thin sterile cotton glove on the hand used for tension (Figure 1) helps

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Figure 1.—Frozen area ready to be planed, using conventional handpiece. Note that rigidity produced by freezing is reinforced by skin being held taut by operator's left thumb and forefinger, aided by cotton glove.

overcome the occasional difficulty of slipperiness caused by blood and serum oozing from adjacent previously planed areas.² If gauze sponges are used for this purpose, they frequently become entangled in the revolving brush, causing "gouging" into the skin and often breaking the flexible shaft.

If indicated, the entire face may be treated at one session of 20 to 30 minutes. The process is moderately uncomfortable to the patient, but not painful.

Sterile gauze is then applied for about 30 minutes while the diffuse capillary bleeding stops. A nonadherent dressing,⁷ Telfa,[®] is finally applied which the patient is instructed to remove the next day. After removal of this dressing there is some serous oozing for several hours, but blotting occasionally with sterile gauze is all that is necessary. A crust promptly forms and separates in about one week. The initial erythema fades gradually in about three to eight weeks to match the adjacent skin. The average case of moderately severe acne scarring requires two planings, some only one, and severe cases may need three or more. The procedure may be repeated anytime after four to six weeks. It is worthy of emphasis that the new skin has a normal appearance and consistency, because it possesses the orifices (pores) of the original cutaneous appendages; whereas a scar

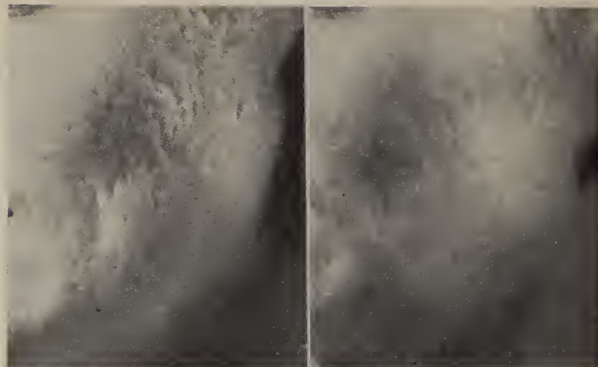


Figure 2.—*Left:* Pitted acne scars on left cheek before surgical planing. *Right:* After two planings.

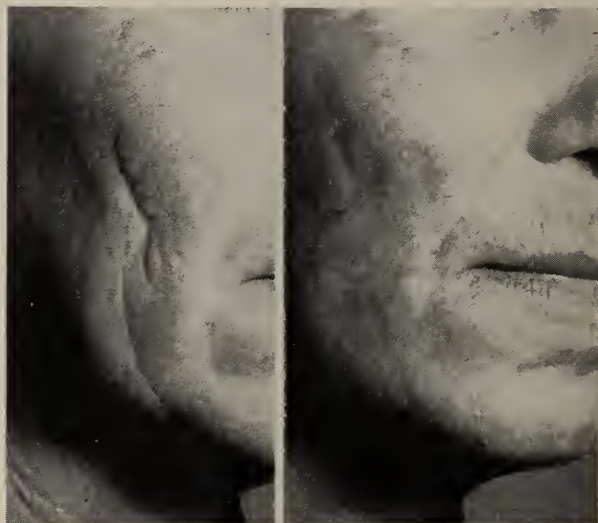


Figure 3.—*Left:* Linear traumatic scars on right cheek before surgical planing. *Right:* After single planing.

of any thickness has a glazed look chiefly due to the absence of sweat pores and pilosebaceous openings. In most cases the results are good to excellent, and in nearly all cases in which planing is indicated it can be helpful.³

In microscopic studies it has been observed that the scarred epidermis and upper dermis are removed to approximately the level of the junction of the sebaceous gland duct and the hair follicle. The new epidermis can be seen to be regenerating in three days from the myriads of cutaneous adnexa (pilosebaceous units) left behind. Clearly, skin with adequate cutaneous adnexa can regenerate quickly without scarring after planing when the deeper portions of these structures are still present and not destroyed. An x-ray burn or deep thermal burn produces atrophic or hypertrophic scarring due to destruction of the adnexa.

Contraindications to planing are the absence of the cutaneous adnexa, as in the above-mentioned conditions, and insufficient scarring to warrant the procedure.³

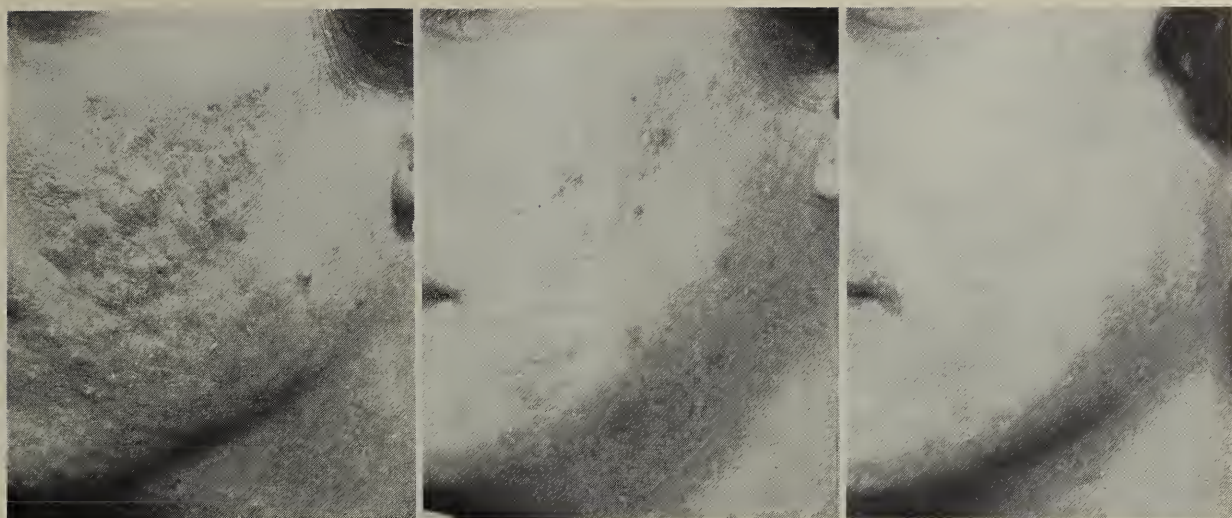


Figure 4.—*Left:* Severe acne vulgaris with scarring before acne therapy. *Center:* After acne therapy, but before surgical planing. *Right:* After first planing.

Complications thus far reported have not been serious.⁴ Bacterial infection is uncommon and is easily dealt with, preferably by an orally administered antibiotic of the type unlikely to cause a cutaneous reaction, such as one of the tetracyclines or erythromycin. Milia are the commonest postoperative problem. They can be easily removed by simple incision and expression. Prolonged erythema is rare and invariably fades eventually. Transient hyperpigmentation is usually the result of premature exposure to the sun. Transient depigmentation is more often seen in persons of racially darker skin or suntanned skin. It usually disappears satisfactorily in four to ten weeks. There is at present insufficient data available to permit conclusions regarding the possibility of persistent hyperpigmentation or depigmentation in dark skinned persons.

Hypertrophic scars are rare and are apparently the result of absence of cutaneous adnexa in an area at the time of operation, or removal of them by the depth of planing.

Keloid (which has not been reported to have occurred with surgical planing of the face) is not to be confused with a hypertrophic scar. A keloid is a dense fibrous response of injured skin where the injury does not necessarily destroy the cutaneous adnexa, as in an incision. Keloids, which occur most frequently on the posterior portion of the neck and presternal areas, and rarely on the face, appear to be due to idiosyncratic diathesis. A hypertrophic scar occurs in areas where the cutaneous appendages have been destroyed and healing must therefore take place by granulation and epidermal bridging from the margins of the wound.

Surgical planing with a rotary wire brush and/or burr has several advantages over abrasion with sandpaper: Hospitalization and general anesthesia

are not required; the small wire brush follows intricate facial contours better; and there is no danger of silica granulomas.

Ethyl chloride has been in common use for local anesthesia during the planing procedure. Grais⁵ noted in this regard that inhalation of the fumes may be a major disadvantage, for abrupt general anesthesia may be brought about inadvertently. One such alarming experience including temporary cessation of respiration was brought to the authors' attention. Other disadvantages of ethyl chloride are that it is inflammable and explosive in certain concentrations; it causes irritation of mucous membranes, and a blower⁶ or stream of compressed air⁸ is required as an additional piece of apparatus to produce adequate freezing when used for that purpose.

The refrigerant-anesthetic, dichlorotetrafluoroethane, which the authors have introduced for use in surgical planing^{1,9,10} has several distinct advantages. In contrast to ethyl chloride, it is nontoxic, has no general anesthetic properties, is noninflammable, and nonexplosive.

Surgical planing is an integral part of the proper treatment of severe scarring acne. It is the final correction of the ravishes of this disease, just as plastic operative treatment is often a basic part of the repair of the defects caused by lacerations or severe burns.

The psychologic depression and limitations of persons with unsightly facial scars is only really appreciated by observing the changes that occur in their attitudes and pursuits after correction of the scarring.

Reports of undesirable results are to date singularly absent from the literature. The future of the newly formed skin would appear excellent if one but recall the similar abrasions of knees on repeated

occasions in childhood while learning to roller skate, and examine now the healed skin without scar and free of sequelae through the years.

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REFERENCES

1. Ayres, S., III, Luikart, R., II, and Wilson, J. W.: Freon 114 as a Refrigerant Superior to Ethyl Chloride Spray for Planing, Schoch Letter, Dallas, Texas, April 1955.

2. Ayres, S., III, and Luikart, R., II: Cotton glove in place of gauze for traction in surgical planing, A.M.A. Arch. Dermat., 71:744, June 1955.

3. Blau, S., and Rein, C. R.: Dermabrasion of the acne pit, A.M.A. Arch. Dermat. & Syph., 70:754-766, Dec. 1954.

4. Edelstein, A. J.: Sequelae following electrosurgical planing treatment for postacne scarring, A.M.A. Arch. Dermat., 71:397, March 1955.

5. Grais, M. L.: Protection against inhalation of fumes of ethyl chloride during surgical planing, A.M.A. Arch. Dermat., 71:396, March 1955.

6. Kurtin, A.: Corrective surgical planing of skin, A.M.A. Arch. Dermat. & Syph., 68:389, Oct. 1953.

7. Le Van, P.: Improved dermal abrasion postoperative dressing, A.M.A. Arch. Dermat., 71:113, Jan. 1955.

8. Le Van, P.: Mechanical method of freezing the skin for surgical planing, A.M.A. Arch. Dermat. & Syph., 69:739, 1954.

9. Luikart, Ralph II, Ayres, Samuel III, and Wilson, J. W.: Experimental data, to be published.

10. Wilson, J. W., Luikart, R., II, and Ayres, S., III: Dichlorotetrafluoro-ethane for surgical skin planing—A safe anesthetic-refrigerant, A.M.A. Arch. Dermat., 71:523, April 1955.



Surgical Planing of the Skin

Complications and Reevaluation of Indications

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SURGICAL PLANING of the skin for removal of scars of various kinds has gained apace in use and in popularity within the past year or two. Many articles about the procedure have appeared in newspapers and in magazines of general circulation, as well as in medical journals. Since overenthusiasm might redound to the ultimate harm of this useful method of treatment, it is well to reexamine, in the light of developing experience, the indications for its use and the complications that are sometimes associated with it.

In a series of 100 surgical planing procedures the untoward sequelae and complications noted were as follows:

Pruritic Erythematous Eczematous Dermatitis

In 1954 the author reported two cases of this previously unreported complication. Six such cases have been observed since. The disease appears characteristically in the planed areas, ten days to two weeks after planing and initially appears to be an intensification of the "normal" postsurgical erythema. The process consists of scattered pinpoint vesicles on an inflammatory erythematous base. A minimal amount of serous scale and crusting is present. This complicating dermatitis usually responds to the local application of hydrocortisone in ointment or emulsion form, together with warm reducing applications such as Alibour's compresses. Sedation is required. In four of the six cases, hydrocortisone was given orally and response was noted in 48 to 96 hours.

The cause of the complication is not known. The delayed "incubation" period makes one think of an allergic phenomenon in which the patient has become sensitized, as it were, to his own serum or the combination of serum plus ointment, debris, sebum, bacteria and other material which might be applied to the face or become a part of the crust. Excessive refrigeration seems not to be a factor, for this process has been observed with minimal refrigeration. In two cases, pruritic dermatitis developed on one side of the face only. All patients who had

• One hundred plastic planing operations on the skin by means of a motor-driven wire brush were reviewed. Complications noted were pruritic erythematous eczematous dermatitis on a possible autosensitization basis, hyperpigmentation and milia. These occurred in a small proportion of cases and in no case were they permanent sequelae.

Flat postacne scarring is more easily improved than steep "ice-pick" type scars.

The planing procedure is contraindicated in the management of certain tumors of the skin, portwine nevi, decorative tattoos, and generalized dermadromes.

The psychiatric and emotional impact of the patient's scarring on his personality is often a great one and the operator must bear in mind that plastic planing is no panacea for a severely neurotic patient. Therefore it is important that patients be carefully selected and that improvement rather than complete cure be stressed.

the allergic dermatitis on the first planing showed it on subsequent planings also. Three of the eight patients gave a history of allergic sensitivity. It was interesting that in the six cases in which this phenomenon occurred after the first planing, it developed ten to fourteen days after the operation. In contrast, in the same patients the process developed rapidly after the second planing—within 48 to 72 hours. This seems to speak more for an allergic "reaction time" phenomenon in the latter instance.

At the time of this report the author had predominantly been using, for several months, dichlorotetrafluoro-ethane (Freon® 114) as a local refrigerant anesthetic, instead of ethyl chloride. In that time, pruritic erythematous eczematous dermatitis did not occur. This does not indict ethyl chloride, of course, although it can be suspect.

Hyperpigmentation

Three cases of hyperpigmentation, one quite severe, were observed. Surprisingly, and contrary to the experience of other investigators, the three patients were particularly fair, blond and blue-eyed. One admitted overexposure to sunshine. The borders of the planed area were particularly prominent and heavily pigmented a dark brown. The mid-forehead was especially affected. In all three cases, there was

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gradual response to applications of Benoquin (monobenzone) ointment, starting with dilute concentrations and working up to the full 20 per cent strength. In one case trichloroacetic acid and carbon dioxide topical therapy was required. All cleared eventually.

Milia

This complication has been reported by other observers. In the series here reported upon it did not occur; but two patients, each with hundreds of milia after a first planing by other dermatologists, were treated. These lesions can best be removed by making an opening with a Hagedorn needle and gently lifting out the seed and the lining with iris scissors. It is the author's impression that this complication occurs when planing is carried too deep, scarring the pilosebaceous ducts, damming the flow of sebum and leading to milia formation.

Pyoderma

Pyoderma has been reported as a sequela by some observers. This was not a problem in the present series. After the first few cases the use of antibiotic ointments and dressings was discontinued as unnecessary. No ointments are used at all. For three post-operative days an inert hydrophobic plastic film gauze dressing is used, and after this no dressings at all.

Indications and Contraindications

Careful selection of patients is to be emphasized, and indications and contraindications for plastic planing, have become clearer in the past year or two.

(a) Patients with postacne scarring can be helped in varying degrees. The best results are obtained when the scars are broad and flat. Steep, "ice-pick" scars are much more difficult and cannot be completely removed. The patient should be told of this in the simplest possible language.

(b) Linear raised keloids and scars can more easily be improved than linear depressed scars.

(c) Decorative tattoos with multicolored pigments situated deep in the corium are particularly difficult to eradicate. They should not be treated by the plastic planing method, as it is likely that an unsightly keloidal scar will result if the necessary deep multiple planings are carried out.

(d) Portwine marks. The author believes planing is not the treatment of choice for a portwine vascular nevus, owing to the depth of the corium usually involved in the pathologic process.

(e) Epidermal nevi. Although the plastic planing procedure has been advocated for the removal of benign tumors and nevi, it is well to call attention to the difficulty entailed in dealing with epidermal nevi (nevus unius lateralis). When lesions such as these are removed surgically, healing takes a long time and the cosmetic result is poor. There seems to be some abnormality not only of the epidermis but also of the connective tissue underlying the epithelial nevus. Therefore, such a tumor if removed by plastic planing heals no more satisfactorily than if excised, removed with electrocautery or dealt with by cryotherapy.

(f) Malignant tumors should be treated by the more standard methods familiar to all.

Since the planing treatment is for cosmetic purposes, dermatologists who carry out the therapy will be confronted with new sets of problems in interpersonal relationships not altogether familiar to them. Searching for information on the psychic aspects of plastic planing and its implications, the author was astonished to find there is no literature on the type of person who seeks cosmetic improvement, although it must be surmised that plastic surgeons, oral surgeons and orthodontists must all be familiar with the patient who is eminently dissatisfied with the result of treatment even though it may be considered fair or better by the therapist.

Now, for the first time, dermatologists are going to experience this distressing situation. Although this is a subject for a separate treatise, it may be pointed out in passing that the emotional scarring may be of greater importance than the scarring of the skin. The patient rarely has a realistic appraisal of the cosmetic problem, and just as he may be overly sensitive about, say, pockmarks, he may also have in mind's eye a rather overly hopeful image of how he will look after surgical planing. Moreover, plastic planing is not going to correct deep psychological disturbance nor is it going to remove anxiety or give poise. A neurotic and poorly adjusted person is going to be just as neurotic and poorly adjusted after planing as before.

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Billroth I Resection for Peptic Ulcer

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THE BILLROTH I gastric resection for peptic ulcer has been used with increasing frequency in recent years in spite of the prejudice of many against the procedure. Bohmansson^{2, 3} in Sweden has renewed the interest in the operation. In America, Clagett, Waugh and Higgenson^{4, 12} advocated its use for gastric ulcer, and Harkins and associates¹⁵ extended its application to include duodenal ulcers as well. Other surgeons, among them Kocher,¹³ von Haberer,⁹ Finney,⁸ Schoemaker²³ and Polya,¹⁹ through the years since Billroth first described the procedure in 1881, have favored its use, although standing alone among their contemporary surgeons.

This report will relate the experience with Billroth I gastric resection at the Veterans Administration Hospital, Long Beach. Since April 1954, 20 patients have had a Billroth I gastric resection, either alone or in combination with vagotomy. The rationale of the procedure will be discussed, and data on the indication, technique, morbidity, mortality, and early results in these cases will be given.

Surgical operation for peptic ulcer aims to alter the stomach physiologically in such a way as to afford protection against recurrence of disease and still maintain good digestive function. Overruling these considerations is the fact that the alteration must be done with safety to the patient. Balfour¹ brought out these points very well in an editorial in 1934.

Acid-pepsin secretion is in general controlled by three factors. (1) The cephalic phase is mediated through the vagus nerve. The importance of acid-pepsin secretion due to vagal hyperfunction in human beings, particularly the importance of the nocturnal hypersecretion, has been clearly shown by Dragstedt.^{5, 6} (2) The gastric phase is mediated through gastrin, a hormone which is produced in the antrum, mainly in response to mechanical distention. Animal experiments on the dog with isolated gastric pouches and transplanted antrums, in the laboratories of both Harkins²² and Dragstedt,⁷ pointed to the great importance of antral function in producing ulcer. Whether these results can be related to human beings is uncertain. Dragstedt,

- The Billroth I gastric resection, with and without vagotomy, was used in 20 selected cases of peptic ulcer.

Vagotomy and pyloroplasty is considered the operation of first choice for duodenal ulcer. The cases for Billroth I resections were selected from cases not suitable for pyloroplasty.

Operations for peptic ulcer which preserve the gastrointestinal continuity are considered to be physiologically superior. Vagotomy and pyloroplasty, and Billroth I gastric resection both qualify in this regard. The postoperative digestive symptoms after Billroth I gastric resection in the present series were minimal, which tends to confirm this theoretical superiority.

however, expressed belief that antral function may be the determining factor in gastric ulcer. (3) The intestinal phase is generally considered to have little part in the production of peptic ulcer. Recently Porter, French and Movius,²⁰ described a late cephalic phase mediated through the pituitary-adrenal axis. Its role in the production of ulcer is uncertain; it may help to explain the occurrence of ulcer in association with corticosteroid therapy.

Good digestion depends primarily on the function of the stomach. The stomach acts as a reservoir for ingested food. It corrects the temperature and tonicity of this food by its rich vascular supply and abundant secretions. By means of its heavy musculature it triturates the food, and mixes it with the gastric enzymes. With antral contraction, the pylorus relaxes, and a small amount of chyme passes into the duodenum. Thus the small bowel receives a prepared material, one which is of the correct temperature, is isotonic, is triturated into small particles, is partially digested, and is delivered in small amounts.¹⁴

Digestion depends further on the supply and adequate mixing of the pancreatic, hepatic and intestinal secretions with the chyme; of these the pancreatic secretions are the most important. Secretin, a hormone which is produced for the most part in the duodenum as a result of the presence of chyme, is the most important factor in stimulating pancreatic secretions. The secretion of bile and succus entericus comes about mainly as a result of stimulation of the duodenum by chyme.

All gastric operations for peptic ulcer alter in some fashion and to variable degrees the acid-pepsin

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TABLE 1.—*Nature of disease in 20 cases in which Billroth I operation was done*

	Cases
Actively bleeding duodenal ulcer.....	6
Gastric ulcer	6
Concomitant gastric and duodenal ulcer.....	4
Actively bleeding gastric ulcer.....	1
Obstructed duodenal ulcer.....	1
Jejunal ulcer, following vagotomy and gastroenterostomy	1
Duodenal ulcer, following vagotomy and pyloroplasty..	1
	20

production of the stomach and the digestive functions of the stomach and intestines. The ordinary Billroth II gastric resection removes the antrum and a considerable part of the acid-pepsin bearing portion of the stomach. It depends entirely on the compensatory ability of the intestine to make up for disturbances in digestion. The Billroth I gastric resection aims to disturb the digestive function as little as possible. In this connection Harkins and co-workers¹⁰ recently suggested a combined physiological operation for peptic ulcer, one that would provide maximal alteration of the factors controlling acid-pepsin production and minimal alteration of the factors controlling digestion. The proposed operation was vagotomy, antrectomy and gastroduodenostomy.

At the Veterans Administration Hospital at Long Beach, vagotomy and pyloroplasty is the operation of first choice for duodenal ulcer. It meets the criteria of Balfour very well. It is a safe operation, a point which has not received due emphasis in the current discussions on the surgical management of peptic ulcer. The mortality rate in some 800 vagotomies was 0.5 per cent. The recurrence rate of ulcer after the operation is low—about 6 per cent. If only definitely proved recurrences are tabulated, the rate is 3 per cent. The incidence of severe postoperative digestive disturbances is also low, about 5 per cent; two-fifths of these are attributed to emotional factors, and three-fifths to organic digestive factors, such as the dumping syndrome, diarrhea or gastric retention. Gastric retention is a minimal problem, for pyloroplasty affords good drainage of the stomach after vagotomy.²⁷ In the overall evaluation of the late results of vagotomy and pyloroplasty, it has been noted that a very satisfactory result occurs in 89 per cent of the cases.²⁵

In certain cases, however, the pathologic condition is such that pyloroplasty is not a suitable procedure. In some of these cases at the VA hospital, Billroth I gastric resection was done. The preference for vagotomy and pyloroplasty accounts for the highly selective nature of cases for Billroth I gastric resection. Data on the 20 cases in which this procedure was chosen are given in Table 1.

Billroth I gastric resection was chosen in these cases because of certain advantages:

1. The entire surgical procedure is performed in the supracolic compartment. The mesocolon is undisturbed, and the danger of inadvertent injury of the middle colic vessels is less and the possibility for a postoperative internal hernia into the lesser sac is avoided. There are fewer adhesions below the mesocolon, and thus the danger of a postoperative intestinal obstruction is less.

2. The danger of a blow-out of the duodenal stump, which is a dreaded and often fatal complication of the Billroth II gastric resection, is avoided.

3. The procedure can be performed more easily and more rapidly than a Billroth II gastric resection, for there are fewer technical steps.

4. The possibility of obstruction of the efferent limb of the gastrojejunal anastomosis due to kinking is obviated. The occurrence of a gastrojejunalcolic fistula is also obviated.

5. The normal continuity of the gastrointestinal tract is maintained. The presence of chyme in the duodenum produces maximal stimulation of secretion, the most powerful stimulus for the production of bile and pancreatic secretion. Duodenal exclusion as with a Billroth II gastric resection interferes with this mechanism. The maintenance of normal continuity also promotes thorough mixing of the food with the bile and pancreatic juice.

6. The gastric remnant empties more slowly after a Billroth I procedure. This may be related to the production of enterogastrone, which inhibits gastric motility. This hormone is produced in the duodenum in response to the presence of fat. Bohmansson expressed belief that this delayed gastric emptying is the most important factor in preventing the dumping syndrome.

7. The duodenum offers more resistance to recurrent ulceration than does the jejunum.¹¹ Furthermore the duodenum in response to the presence of chyme produces a factor that inhibits gastric acid production.¹⁸ Both of these factors should play a role in preventing recurrent duodenal ulcer after a Billroth I gastric resection.

8. The maintenance of the continuity of the intestinal tract provides for utilization of the greatest absorptive area of small bowel, for no part of the small bowel is by-passed.

9. The maintenance of the normal gastrointestinal tract improves metabolic factors, as demonstrated by better fat and iron absorption, and better weight gain.²⁸

The more important advantages of the Billroth I gastric resection are on the score of less severe and less frequent digestive and metabolic disturbances.

It has been the clinical impression of many surgeons, including Bohmansson, Perman,¹⁷ Wallensten,²⁴ Clagett, Rauch,²¹ Harkins, Moore, and others that this is so.

There were in addition several special advantages for the Billroth I gastric resection in the cases in which it was selected in the present series. For actively bleeding duodenal or gastric ulcers, the Billroth I procedure permits resection, and thereby gives good control of the bleeding ulcer. It has been noted that a good and safe gastroduodenal anastomosis can be made on a duodenum which, if a Billroth II had been done, would have presented great difficulty in closure of the duodenal stump, and probably would have required closure over an external catheter. For gastric ulcer the resection permits submitting the ulcer for immediate pathologic examination. If the frozen section shows malignant change, or if the permanent sections show malignant disease after the frozen section is interpreted as negative for cancer, it is much easier to proceed with radical operation after a Billroth I gastric resection.

It must be conceded that Billroth I gastric resection is not the only way of dealing with these cases. Vagotomy, pyloroplasty and ligation of the bleeding vessel in the ulcer bed has been used with favorable results,²⁶ and Movius, DaGradi and Weinberg¹⁶ reported on the favorable results of using vagotomy, pyloroplasty and wedge resection of the stomach for gastric ulcer.

The Schoemaker modification of the Billroth I gastric resection was used exclusively in the present series. In 11 of the cases the operation was done in association with vagotomy. For duodenal ulcer, or for concomitant duodenal and gastric ulcer, a vagotomy, partial (60 per cent) gastrectomy and Billroth I anastomosis were done. For gastric ulcer alone a partial (60 per cent) gastrectomy and Billroth I anastomosis were done. In the two cases of recurrent ulcer after vagotomy a 75 per cent partial gastrectomy and Billroth I were done.

No technical difficulties were encountered with these various degrees of partial gastrectomy. With mobilization of the duodenum by means of the Kocher maneuver, and mobilization of the greater curvature of the stomach to include the short gastric arteries, a 75 per cent partial gastrectomy and gastroduodenal anastomosis can be done without tension. The addition of vagotomy when it is indicated adds to the ease of mobilizing the gastric remnant for anastomosis.

The gastroduodenal anastomosis has been performed with interrupted No. 50 cotton sutures, two rows posteriorly; but only one row anteriorly. If the cut ends in the stomach and duodenum are different in size, the smaller one can be enlarged with an incision along the anterior longitudinal axis. No diffi-

culty of stomal obstruction or of leakage has occurred with this technique. Roentgen studies three months after operation showed complete emptying of the gastric remnant at three hours.

Morbidity with the Billroth I gastric resection was minimal. One patient had questionable thrombophlebitis and was treated with anticoagulants. Another patient had superficial wound separation down to the anterior fascia of the rectus muscle. The wound healed by secondary intention. The only complication directly attributed to the procedure was in a patient who had severe bleeding from the suture line of closure of the lesser curvature of the stomach on the fifth postoperative day. Operation was required to control the hemorrhage. A small incision was made and the bleeding vessel was secured with a transfixation ligature.

The one fatal case in the series was that of a patient who died on the eleventh postoperative day of pneumonitis and multiple abscesses of the lung. He had a carcinoma of the hypopharynx that had been previously treated with radiation, and he had great difficulty swallowing. The operation was done to control bleeding from a posterior duodenal ulcer which had eroded the gastroduodenal artery. The patient did well for seven days after operation. At that time he complained of pain in the right hemithorax and became febrile. His condition progressively deteriorated until death in spite of all treatment.

The early postoperative results were gratifying. The Billroth I gastric resection proved to be technically effective in dealing with the cases for which it was used in this series, especially in dealing with cases of bleeding duodenal or gastric ulcers, and of concomitant duodenal and gastric ulcers. The patients were studied radiographically and clinically three months after operation. The postoperative x-ray studies have shown complete emptying of the gastric remnant in three hours and no objective evidence of recurrent ulcer. None of the patients complained of recurrent ulcer pain. Complaints of digestive difficulties were minimal. Three patients noted a moderately decreased capacity for food. One had occasional loose stools. One had slight weakness after meals. The most severe digestive complaints, consisting of postprandial fullness, nausea and occasional vomiting, occurred in a 39-year-old woman who had had a previous duodenal-jejunal anastomosis to relieve efferent obstruction of a gastroenterostomy. The Billroth I gastric resection was done for a bleeding duodenal ulcer, and the duodenal-jejunal anastomosis was left intact. The patient was well satisfied in spite of the postoperative complaints, for the disabling ulcer pain was completely relieved. Postoperative x-ray studies showed complete emptying of the gastric remnant in

TABLE 2.—Results of Billroth I gastric resection

Case No.	Age and Sex	Disease	Indication	Operation	Complication	3-Month Followup		Weight Since Operation
						Ulcer Pain	Digestive Symptoms	
1.	60 M	Gastric ulcer	Suspicion of carcinoma	Gastrectomy 60% Billroth I	None	None	None	No change
2.	32 M	Duodenal ulcer	Pyloric obstruction	Vagotomy Gastrectomy 50% Billroth I	Bleeding from site of lesser curvature closure	None	None	
3.	61 M	Two gastric ulcers	Gastric ulcer	Gastrectomy 60% Billroth I	None	None	None	3 lb. gain
4.	38 F	Duodenal ulcer	Active bleeding	Vagotomy Gastrectomy 60% Billroth I	None	None	Moderate postprandial distress, nausea, occasional vomiting	
5.	57 M	Gastric ulcer	Gastric ulcer	Gastrectomy 60% Billroth I	None	None	None	13 lb. loss
6.	65 M	Duodenal and gastric ulcer	Pyloric obstruction	Vagotomy Gastrectomy 60% Billroth I	None	None	Mild decreased capacity for food	13 lb. gain
7.	59 M	Gastric ulcer	Active bleeding	Gastrectomy 60% Billroth I	None	None	Mild decreased capacity for food	10 lb. gain
8.	31 M	Gastric ulcer and duodenal scar	Gastric ulcer	Vagotomy Gastrectomy 60% Billroth I	None	None	None	22 lb. gain
9.	66 M	Gastric and duodenal ulcer	Suspicion of carcinoma	Vagotomy Gastrectomy 60% Billroth I	None	None	None	3 lb. gain
10.	75 M	Gastric ulcer	Pyloric obstruction	Gastrectomy 60% Billroth I	None	None	Moderate loss of strength	13 lb. loss
11.	43 M	Gastric ulcer	Gastric ulcer	Gastrectomy 60% Billroth I	None	None	None	No change
12.	55 M	Duodenal ulcer	Active bleeding	Vagotomy Gastrectomy 60% Billroth I	Death on 11th postoperative day from multiple abscesses of right lower lobe. Patient had great difficulty swallowing because of carcinoma of hypopharynx.			
13.	47 M	Duodenal ulcer	Active bleeding	Vagotomy Gastrectomy 60% Billroth I	None	None	Mild weakness after meals	16 lb. loss
14.	52 M	Gastric ulcer and duodenal scar	Pyloric obstruction	Vagotomy Gastrectomy 60% Billroth I	None	None	Occasional diarrhea	9 lb. gain
15.	23 M	Duodenal ulcer	Active bleeding	Vagotomy Gastrectomy 60% Billroth I	None	None	Mild decreased capacity for food	No change
16.	23 M	Two duodenal ulcers	Active bleeding	Vagotomy Gastrectomy 60% Billroth I	None	None	None	No change
17.	42 M	Duodenal ulcer	Active bleeding	Vagotomy Gastrectomy 60% Billroth I	Superficial wound dehiscence	None	None	No change
18.	28 M	Duodenal ulcer	Duodenal ulcer after vagotomy & pyloroplasty	Gastrectomy 75% Billroth I	None	None	None	No change
19.	61 M	Gastric ulcer	Gastric ulcer	Gastrectomy 60% Billroth I	Thrombophlebitis			
20.	71 M	Jejunal ulcer	Jejunal ulcer after vagotomy gastroenterostomy	Gastrectomy 75% Billroth I	None			

three hours. All the rest of the patients were free of symptoms.

It is acknowledged that the period of observation of these patients after operation was too short to warrant definitive conclusions. The early results nevertheless were encouraging enough to merit continuing the study.

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REFERENCES

1. Balfour, D.: The status of Billroth I in the surgery of the stomach and duodenum, *S.G.O.*, 58:917-918, 1934.
2. Bohmansson, G.: On the technique of partial gastrectomy (Billroth I), *Acta Chir. scandinav.*, 75:221-241, 1934.
3. Bohmansson, G.: Prophylaxis and therapy in late post-gastrectomy complications, *Acta med. scandinav.*, 138, suppl. 246:37-45, 1950.
4. Clagett, O., and Waugh, J.: Indications for and advantages of Schoemaker-Billroth I gastric resection, *Arch. Surg.*, 56:750-765, June 1948.
5. Dragstedt, L.: Section of the vagus nerves to the stomach in the treatment of peptic ulcer, *S.G.O.*, 83:547-549, 1946.
6. Dragstedt, L.: The role of the nervous system in the pathogenesis of duodenal ulcer, *Surg.*, 34:902-903, 1953.
7. Dragstedt, L., Oberhelman, H., and Smith, C.: Experimental hyperfunction of the gastric antrum with ulcer formation, *Ann. Surg.*, 134:332-341, Sept. 1951.
8. Finney, J.: A new method of gastroduodenostomy, end to side: with illustrations, *Tr. South. S.A.*, 36:576-578, 1924.
9. von Haberer, H.: Terminolaterale Gastroduodenostomie bei der Resektionsmethode nach Billroth I, *Zentralbl. Chir.*, 49:1321-1327, Sept. 1922.
10. Harkins, H., et al: A combined physiologic operation for peptic ulcer, *West J. of S. G. & O.*, 61:316-319, June 1953.
11. Harper, F.: Development and treatment of peptic ulcer; experimental study, *Arch. Surg.*, 30:394-404, 1935.
12. Higginson, J., and Clagett, O.: Gastric resection: The Schoemaker-Billroth I operation, *Surg.*, 24:613-620, Oct. 1948.
13. Kocher, T.: Mobilisierung der Duodenum und Gastroduodenostomie, *Zentralbl. Chir.*, 30:33-40, Jan. 1903.
14. Mikkelsen, W.: Restoration of esophagointestinal continuity after total gastrectomy: Physiologic effects, *Am. J. of Gastroenterology*, 21:281-284, April 1954.
15. Moore, H., and Harkins, H.: *The Billroth I Gastric Resection*, Little, Brown & Company, Boston, Mass., 1954.
16. Movius, H., DaGradi, A., and Weinberg, J.: Conservative resection for gastric ulcer, *Am. J. Gastroenterology*, 22:136-141, Aug. 1954.
17. Perman, E.: Dumping Syndrome After Gastrectomy, *Acta med. scandinav.*, Suppl. 196:361-365, 1947.
18. Pincus, I., Thomas, J., and Rehfuess, M.: A study of gastric resection as influenced by changes in duodenal acidity, *Proc. Soc. Experimental Biol. & Med.*, 51:367-368, June 1942.
19. Polya, E.: Reestablishment of the gastrointestinal passage after gastric resection, *S.G.O.*, 70:220-290, Feb. 1940.
20. Porter, R., Movius, H., and French, J.: Hypothalamics influence on hydrochloric acid secretion of the stomach, *Surgery*, 33:875-880, 1953.
21. Rauch, R., and Reiter, B.: The treatment of postprandial distress following gastric resection, *Gastroenterology*, 23:347-355, 1953.
22. Sauvage, L., Schmitz, L., Storer, E., Kanar, E., Smith, F., and Harkins, H.: The relation between the physiologic stimulatory mechanism of gastric secretion and the incidence of peptic ulceration, *S.G.O.*, 96:127-142, Feb. 1953.
23. Schoemaker, J.: Zur Technik der Magenresektion nach Billroth I, *Arch. Klin. Chir.*, 121:268-271, 1922.
24. Wallensten, S., and Gothman, L.: An evaluation of the Billroth I operation for peptic ulcer, *Surg.*, 33:1-20, 1953.
25. Weinberg, J.: Vagotomy and pyloroplasty in the treatment of duodenal ulcer. To be published in *Am. J. Surg.*
26. Weinberg, J.: Personal communication.
27. Wilkins, F., Johnston, P., and Weinberg, J.: Pyloroplasty as a drainage procedure in the vagotomized patient, *West, J. of S.G.O.*, 62:525-527, 1954.
28. Wollaeger, E.: Disturbance of gastrointestinal function following partial gastrectomy, *Postgrad. Med.*, 8:251-252, 1950.



Complications Following Subtotal Gastrectomy

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SUBTOTAL GASTRECTOMY of the Billroth II type has been widely employed in the surgical treatment of peptic ulcer.

Postoperative complications incident to this procedure have been significantly reduced during the past decade or more owing to improved anesthesia, better understanding of preoperative and postoperative care including electrolyte balance and blood replacement, and the judicious use of antibiotics and anticoagulants.

There are, however, certain complications peculiar to this procedure which constitute a definite hazard and account in large measure for the remaining morbidity and mortality.

It is the purpose of this presentation to discuss these complications with particular reference to methods which may be used to reduce their incidence.

For the purpose of this study 400 consecutive cases were analyzed. The operations were done by various members of the surgical staff of the Methodist Hospital of Southern California and Centinella Hospital of Inglewood.

In addition 100 consecutive cases in which the authors did the operation were reviewed.

In the former series there were 57 cases in which major complications occurred, an incidence of 14 per cent. In 25 of these cases the complications were inherent to the technical aspects of the operation.

There were 14 deaths, a mortality rate of 3.5 per cent. In nine of these cases death was owing to complications here designated as "technical complications."

Table 1 shows the complications associated with mortality and Table 2 those associated with morbidity only.

The conditions here considered are:

1. The leaking duodenal stump.
2. Afferent closed loop obstruction.
3. Stomal complications.
 - (a) Dysfunction of the efferent stoma.
 - (b) Stomal obstruction.
 - (c) Postoperative anastomotic bleeding.

THE LEAKING DUODENAL STUMP

At present as in the past dehiscence of the duodenal stump leading to peritonitis, subhepatic ab-

• Four hundred consecutive cases in which subtotal gastrectomy was done for duodenal and gastric ulcer were reviewed. The mortality rate was 3.5 per cent. There were 57 complications, an incidence of 14 per cent. Of the fatal complications, duodenal stump disruption was the most common and serious—11 cases and 7 deaths. The other fatal complications included various types of obstruction, pulmonary embolus, hemorrhagic pancreatitis and separation of the abdominal incision. Of the nonfatal complications, obstruction of the stoma, anastomotic bleeding, pneumonia, venous thrombosis and wound infection were the most common.

Catheter duodenostomy is helpful in the closure of a difficult duodenal stump. Where this was done in the present series there were no fatalities.

Electrolyte balance, correction of protein deficiencies, blood replacement and the judicious use of antibiotics are important prophylactic factors against postoperative complications.

scuss, subphrenic abscess or fistula formation is a not infrequent complication presenting a lethal threat to an otherwise successful operation.

The etiological factors according to Avola and Ellis¹ may be listed under the following headings:

TABLE 1.—Complications associated with mortality in 400 Billroth II operations

Complications	No.	Nonfatal	Fatal	Per Cent Fatal
Leak of duodenal stump.....	11	4	7	63.6
Afferent closed loop obstruction	3	1	2	66.6
Pulmonary embolism	5	3	2	40.0
Acute hemorrhagic pancreatitis	1	0	1	100.0
Thrombosis of middle colic artery	1	0	1	100.0
Postoperative eventration	9	8	1*	11.0

*With myocardial infarction and congestive heart failure.

TABLE 2.—Complications associated with morbidity but not mortality in 400 Billroth II operations

Complications	No.
Nonfunctioning efferent stoma.....	5
Postoperative anastomotic bleeding.....	4
Pneumonia	5
Deep venous thrombosis.....	3
Wound infection	3
Atelectasis	2
Obstruction of stoma (adhesions).....	2
Small bowel obstruction }	1
Thromboembolism }	
Abdominal wall abscess }	
Postoperative psychosis	1
Cardiac decompensation	1

Presented before the Section on General Surgery at the 84th Annual Session of the California Medical Association, San Francisco, May 1-4, 1955.

SYNDROME of the LEAKING DUODENAL STUMP

- DIFFICULT CLOSURE of DUODENAL STUMP
- RIGHT UPPER ABDOMINAL { PAIN
TENDERNESS
RIGIDITY
- LATER, GENERALIZED ABDOMINAL FINDINGS WITH DIMINISHED or ABSENT PERISTALSIS
- ELEVATION of TEMPERATURE and PULSE RATE
- RESPIRATORY RATE SHOWS A DELAYED ELEVATION



1. Local, as the presence of inflammatory tissue in the suture line, impairment of local blood supply, devitalization of tissue as a result of crushing by clamps and the digestive action of pancreatic juice on the suture line.

2. Systemic factors including anemia and malnutrition with hypoproteinemia.

3. Obstructive factors with resulting increased intraduodenal pressure causing a "blow out" or leak.

Avola and Ellis emphasized that while a combination of factors may be present, in most cases one is usually paramount.

An analysis of the 11 cases in the present series, (with seven fatalities, which accounted for 50 per cent of the deaths in the entire series) revealed a circumstance which the authors believe to be of great practical importance: The fact that difficulty in duodenal stump closure was emphasized in the operative report in nine of these 11 cases is considered especially pertinent. Difficulty in closure should forewarn the surgeon of impending trouble in time to invoke preventive measures.

Two other observations are worthy of mention, relating to sex and age. Males predominated ten to one, whereas in the series the proportion was less than three to one. In the series of Avola and Ellis the incidence was twelve to one. The average age in this group was 61 years, while the average age for the series was 50.7 years.

Clinical Manifestations

Leakage of the stump, as was previously mentioned, is usually preceded by technical difficulty in closure (see chart). The onset of symptoms generally occurs with suddenness and severity during the first postoperative week, characterized by pain in the right upper quadrant of the abdomen, tender-

ness and rigidity. Later the abdominal manifestations become generalized, with peristalsis diminished or absent.

Occasionally there will be drainage of bile-stained fluid through the operative incision or stab wound. Elevation of temperature and pulse rate occurs immediately preceding or shortly after the onset of pain. The respiratory rate, however, shows a delayed elevation. This delay may be of importance in ruling out pulmonary complications.

Management of the Difficult Duodenal Stump

The ideal management consists in the use of preventive measures. Inasmuch as adequate preoperative preparation will correct the factors of anemia and other nutritional deficiencies, and obstruction may be largely prevented by correct technique, it follows that special consideration given to the care of the duodenal stump which is difficult to close should greatly reduce the incidence of leakage.

In spite of a careful technique there will be certain cases in which a safe closure cannot be obtained by any of the conventional methods usually employed. The incidence of these cases will approximate 3 per cent.

The deliberate creation of a duodenal fistula by means of catheter duodenostomy constitutes a simple and safe method of obviating the serious complications incident to dehiscence of the duodenal stump in those cases in which unusual difficulty is encountered. Catheter duodenostomy has been advocated by Welch,¹⁰ Priestly⁶ and others.

A catheter No. 14 to 16 F, is inserted and the duodenum is closed snugly around it (see chart). A portion of the gastrocolic omentum or adjacent fatty tissue is used to reinforce the exit of the tube

MANAGEMENT of the DIFFICULT DUODENAL STUMP

PROPHYLACTIC TREATMENT

- Catheter duodenostomy

ACTIVE TREATMENT

- Prompt surgical intervention, duodenostomy and peritoneal drainage

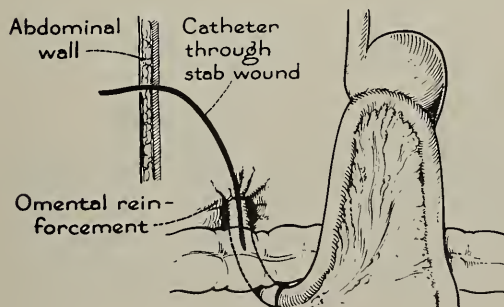


TABLE 3.—Incidence of leakage of duodenal stump in various series

	Number of Resections	Leaking Duodenal Stump			
		Incidence		Mortality	
		No.	Per Cent	No.	Per Cent
Avola and Ellis (Boston City Hospital)	621	13	2.1	10	77
Larsen and Foreman (Western Reserve)	500	15	3	11	73.3
McKittrick et al., 1st series	124	7	5.6	3	42.8
(Massachusetts General Hospital) 2nd series	94†	1	1.06	0	0
Present series	400	11	2.7	7	63.6
Authors' series	100*	1	1	0	0

†Series in which 2 stage procedure was used when indicated.

*Primary duodenostomy employed in difficult closure (5 cases).

from the stump and the catheter is brought out through a stab wound. The fluid may be collected in a bottle and measured as an aid in determination of replacement needs.

In the experience of the authors the drainage has not been excessive and the need for jejunostomy in order to reintroduce the fluid into the intestinal tract has not been apparent.

The catheter may be clamped for alternate hours within ten to fourteen days and removed shortly thereafter. The drainage will cease and the sinus tract close within a period of 48 hours.

This procedure was not used in any of the 11 cases in the present series in which duodenal leak occurred, nor was it used in the four patients that were reoperated upon.

The insertion of a Penrose drain down to the duodenal stump and brought out through a stab wound, as frequently employed, may tend to give a false sense of security. It is true that it favors the development of an external fistula in case leak occurs but as shown in this series it is no guarantee against a fatal outcome as deaths occurred in the three cases of dehiscence in which a Penrose drain was used.

The incidence and mortality of this complication in different series is shown in Table 3.

It is interesting to note the pronounced improvement in the second series of McKittrick.⁵ In that series a two-stage procedure was used when indicated by the degree of local inflammatory reaction of the pyloric and duodenal area.

In the authors' series of 100 consecutive cases catheter duodenostomy was performed in three instances as a primary procedure.

AFFERENT CLOSED LOOP OBSTRUCTION

It is recognized that there are several different types of small bowel obstruction of the closed loop type which may occur following subtotal gastrectomy. The common factor is obstruction that is caused by a loop of small bowel passing through the

THE SYNDROME OF AFFERENT CLOSED LOOP OBSTRUCTION

This complication usually follows the long loop antecolic isoperistaltic type of anastomosis

SYMPTOMS { UPPER ABDOMINAL PAIN
VOMITING (VOMITUS CONTAINS NO BILE)

PHYSICAL FINDINGS: DEVELOPMENT in LEFT ABDOMEN of { TENDERNESS
FULLNESS
INDEFINITE MASS

X-RAY FINDINGS { SHADOW OF MASS in LEFT ABDOMEN
DECREASED GAS in LARGE BOWEL

hiatus between the anastomosis in front and the transverse colon behind. The mechanism varies relative to the loop involved, afferent or efferent and the direction from which the bowel passes into the hiatus whether from the right or left side.

Stammers,⁸ in a review of reports of 16 cases from different parts of the world, noted that in 15 instances the anastomosis was antecolic, and in only one retrocolic. Likewise there were 15 cases in which the afferent loop was attached to the lesser curvature (isoperistaltic) and one in which the efferent loop was attached at the lesser curvature (antiperistaltic).

At the risk of over-simplification, this presentation will consider only afferent loop obstruction occurring secondary to the antecolic, isoperistaltic anastomosis. The reasons for this limitation are as follows:

1. It was the only type encountered in this series.
2. It is apparently the most frequent type. (This was true in Stammers series as well as that reported by Quinn and Gifford⁹ in which it occurred five times in 500 cases.)
3. It presents a specific syndrome which enables early recognition.

The syndrome of afferent loop obstruction (see chart) is characterized by:

1. History of antecolic, isoperistaltic subtotal gastrectomy.
2. Upper abdominal pain and vomiting. Of great importance is the fact that the vomitus contains no bile.
3. The abdominal findings consist of tenderness and fullness in the left side of the abdomen where an indefinite mass may be palpated.
4. A plane film of the abdomen will reveal the shadow of a mass in the left side of the abdomen and decreased gas in the large bowel.

Treatment

When an antecolic, isoperistaltic anastomosis is performed it is possible to reduce the incidence of

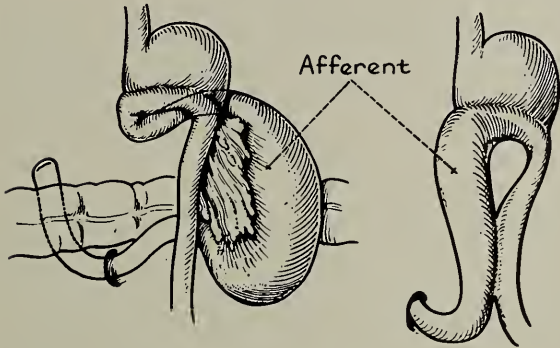
TREATMENT OF AFFERENT CLOSED LOOP OBSTRUCTION

PROPHYLACTIC TREATMENT

- Avoid excessive length of afferent loop
- Closure of retro-anastomotic gap.

ACTIVE TREATMENT

- Early operation, reduction of incarcerated loop and entero-anastomosis



afferent loop obstruction by avoiding an overly long afferent loop and, as suggested by Stammers, obliterating the retroanastomotic gap as much as practical by interrupted sutures (see chart).

The active treatment of choice is early operation to release the trapped afferent loop and enteroanastomosis before the advent of gangrene of the bowel and peritonitis.

In the present series this complication occurred three times—in each instance following a Polya, antecolic isoperistaltic anastomosis. Death occurred in two cases without reoperation. The cause of death was gangrene of the bowel and localized peritonitis, as observed at autopsy. One patient (in the authors' series) recovered following reduction of the incarcerated loop and enteroanastomosis.

STOMAL COMPLICATIONS

Nonfunctioning Efferent Stoma

Nonfunctioning efferent stoma while not a common complication, occurs often enough to warrant discussion in view of the embarrassing and often serious consequences. There are various factors which have been considered responsible for this condition, one or more of which may be present in a given case. It is often difficult even upon operative exposure to determine unequivocally the exact etiologic factor.

Development of inflammatory adhesions, which may contribute to malfunctioning or actual obstruction, is not as common now as formerly because of a more precise operative technique which includes

the avoidance of spillage, mass ligation of tissues and clamping of stomach or bowel at the anastomotic site.

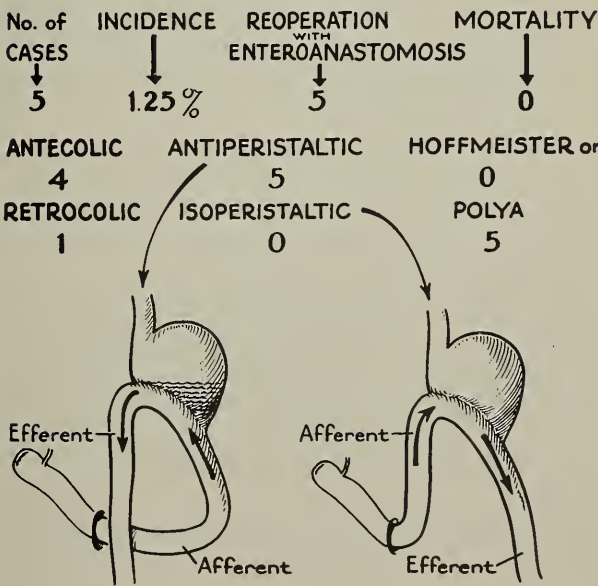
In cases in which the omentum, largely deprived of its blood supply, is not removed, sterile inflammation with necrosis may play an important part in malfunctioning of the stoma.³

Nutritional edema, the result of malnutrition with hypoproteinemia, may be an accessory factor but in the authors' opinion should not be incriminated as the main cause inasmuch as normal function is frequently restored spontaneously at the time of minimal protein balance in the postoperative period. An explanation given by Golden² is that functional obstruction of the efferent loop occurs as a result of spasm. In his opinion the spasm is due to a temporary disturbance in muscle function resulting from surgical trauma.

Golden called attention, however, to the fact that the stomach pouch, when distended with food, expands more on the greater curvature side and that the anastomosis lies lower at this point. For this reason drainage of the stomach pouch is easier when the efferent loop is at the greater curvature.

Prohaska and co-workers,⁷ in a study of 130 consecutive cases of subtotal gastrectomy, found that in 60 cases with a retrocolic antiperistaltic anastomosis, seven patients developed obstructive dysfunction of the efferent jejunal loop while in 70 cases with a retrocolic isoperistaltic type of anastomosis there were only three such cases. It was their belief that the dysfunction was caused by an atonic gastric pouch in which the efferent outlet is

NONFUNCTIONING EFFERENT STOMA



placed above the afferent inlet and that while it may develop following a high subtotal gastrectomy with an isoperistaltic anastomosis, it occurs more often in the antiperistaltic type with the efferent loop at the lesser curvature.

The data (see chart) obtained from a study of the five cases in the present series in which reoperation was done would seem to support this explanation. In four cases the operation was antecolic and one retrocolic while the series incidence was approximately four to one. All were of the Polya type, and it is considered especially significant that all were antiperistaltic procedures, efferent loop to lesser curvature. The series incidence for these two procedures was almost equal, there being ten more of the isoperistaltic type. Edema of the stoma was noted in all cases, but there was no evidence of actual obstruction. One may only speculate as to whether or not the edema was secondary to suction and lack of oral feeding over a prolonged period. In the two patients in the series 100 operated upon by the authors, reoperation was performed on the 21st and 30th day respectively.

Treatment

Preventive measures include the maintenance of nutritional balance, an atraumatic technique, routine removal of omentum and avoidance of mass ligature.

In order to prevent atony and dilatation of the gastric pouch, bi-daily aspiration should be done in patients with retention. Probably the most important factor to reduce the incidence of this complication is the use of an isoperistaltic type of anastomosis in order to place the efferent loop in a dependent position at the greater curvature.

The Hofmeister procedure, the authors believe, is superior to the Polya for two reasons:

1. The point of potential angulation and the area of potential edema of the afferent loop are separated by a definite interval.

2. Reverse flow into the proximal loop is prevented. Active treatment consists of early recognition with decompression of gastric pouch and maintenance of nutritional balance. In persistent cases surgical intervention may be required.

In the absence of actual obstruction, performance of an enteroanastomosis is usually all that is required as diversion of duodenal content into the efferent loop reduces the tendency toward atony of the gastric pouch and makes easier the maintenance of nutritional balance until stomal function is restored.

In one personal case an enterostomy for feeding purposes was utilized and in another a Kaslow tube

was threaded through the patent stoma. It is believed, however, that those measures were unnecessary.

Stomal Obstruction

Actual obstruction of the efferent stoma, a comparatively rare complication, occurred only once in the present series. Inflammatory adhesions were the cause. Successful operation was performed to release adhesions.

Postoperative Anastomotic Bleeding

Massive bleeding from the anastomosis occurred in three patients. Reoperation was performed in two—an hour and a half after completion of operation in one case, and on the sixteenth postoperative day in the other. In each instance the stomach pouch was opened on the anterior surface through a vertical incision, the bleeding point identified and ligated and the anastomotic suture line reinforced. In the third case bleeding occurred on the eighth postoperative day but was controlled without reoperation.

This type of postoperative bleeding did not occur in the 100 cases in which the authors did the operation. This is attributed largely to the fact that at the time the stomach and jejunal tissues were prepared for anastomosis each vessel in the cut stomach and jejunum was individually clamped with a Halsted hemostat and secured with a fine chromic catgut tie. This precaution was in addition to the use of a hemostatic stitch for the first layer of the anastomosis.

DISCUSSION

The conclusion is inescapable that the Billroth II procedure possesses certain inherent characteristics which favor the development of serious and potentially fatal complications. It should be pointed out, however, without consideration of the merits or demerits of the operation from the physiological standpoint, that the procedure has been widely employed with good results and with a reasonable mortality rate.

It will be noted that the mortality rate in four hundred consecutive cases, from two institutions which may be considered average community hospitals, was 3.5 per cent.

It is the opinion of the authors that the mortality rate may be substantially reduced by detailed consideration of the technical aspects of this operative procedure. In a series of 100 consecutive cases the Billroth II operation was performed by the authors without mortality. There were, however, two cases of malfunctioning efferent stoma, one case of afferent loop obstruction and one case of duodenal fistula.

It is the opinion of the authors that the modification of the Billroth II operation best adapted to

reduce the incidence of technical complications is the Hofmeister antecolic, isoperistaltic procedure with resection of the omentum, individual ligation of vessels in the anastomotic line, closure of the retroanastomotic pouch, as recommended by Stammers, and catheter duodenostomy when extreme difficulty is encountered in obtaining secure closure of the duodenal stump.

A possible advantage of the antecolic operation may be that the incidence of actual stomal obstruction will be reduced. Furthermore, if reoperation is required the operative field is more accessible.

One complication, apparently rare, which occurred incident to the retrocolic procedure was thrombosis of the middle colic artery.

CONCLUSIONS

1. Mortality factors of the Billroth II subtotal gastrectomy are due in a large measure to certain features incident to the procedure.

2. Careful consideration of the various technical aspects of the operation will enable the surgeon to substantially reduce both morbidity and mortality.

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REFERENCES

1. Avola, F. A., and Ellis, D. S.: Leakage of the duodenal or antral stump complicating gastric resection, *Surg., Gyn. and Obst.*, 99:359-367, Sept. 1954.
2. Golden, R.: Functional obstruction of efferent loop of jejunum following partial gastrectomy, *J.A.M.A.*, 148:721-724, March 1, 1952.
3. Kirschner, P. A., and Garlock, J. H.: The rationale of routine omentectomy in subtotal gastrectomy, *Surg.*, 36:884-897, Nov. 1954.
4. Larsen, B. B., and Foreman, R. C.: Syndrome of the leaking duodenal stump, *Arch. Surg.*, 63:480-485, Oct. 1951.
5. McKittrick, L. S., Moore, F. D., and Warren, R.: Complications and mortality in subtotal gastrectomy for duodenal ulcer, *Ann. of Surg.*, 120:531-561, Oct. 1944.
6. Priestley, J. T., and Butler, D. B.: Duodenostomy, *Am. J. Surg.*, 82:163-166, July 1951.
7. Prohaska, J. V., Govostis, M. C., and Kirsteins, A.: Mechanism of the efferent stoma dysfunction following subtotal gastrectomy, *Arch. Surg.*, 68:491-499, April 1954.
8. Stammers, F. A. R.: Remarks on fifteen cases of small bowel obstruction following antecolic partial gastrectomy and one case following retrocolic partial gastrectomy, *Brit. J. Surg.*, 42:34-38, July 1954.
9. Quinn, W. F., and Gifford, J. H.: The syndrome of proximal jejunal loop obstruction following anterior gastric resection, *Calif. Med.*, 72:18-21, Jan. 1950.
10. Welch, C. E., and Rodkey, G. V.: A method of management of the duodenal stump after gastrectomy, *Surg., Gyn. and Obst.*, 98:376-379, March 1954.



Duodenal Ulcer

Gastrectomy Versus Vagotomy With Accessory Procedures

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EVER SINCE Dragstedt restored vagotomy as a surgical treatment for duodenal ulcer to a firmer physiologic and anatomic foundation, a great deal of controversial furor has been generated between the protagonists of vagotomy and those of gastrectomy. There are now signs that the tumult is subsiding and that both procedures will find their rightful places in the surgical management of benign duodenal ulcer.

Although this subject has been primarily a surgical controversy, nevertheless, it is worthwhile to present an attitude based on a purely medical experience with respect to this problem.

There are four main points for emphasis here:

1. Operation, whatever the kind, is not the answer to the problem of duodenal ulcer. It becomes an issue only when complications arise which are beyond medical control.

2. There are limitations to every surgical procedure.

3. There is a place for gastric resection, gastroenterostomy, pyloroplasty and vagotomy in the surgical treatment of duodenal ulcer.

4. The main problem which concerns the physician is the determination of which surgical procedure is the one of choice in a particular clinical situation.

It would seem that the surgical procedure of choice should have the lowest mortality, the least number of complications, the most manageable complications, and, above all, when expertly done, should be followed by the least number of ulcer recurrences. During the past eight years the authors have had extensive preoperative and postoperative medical experience with vagotomy at the Veterans Administration hospitals of Van Nuys and Long Beach, California, where the project has been under the able direction of Dr. Joseph A. Weinberg. We have become cognizant of the value as well as the limitations of vagotomy when done with an accessory operative procedure designed to facilitate gastric

• Vagotomy should be added to whatever other surgical procedure is used in the treatment of duodenal ulcer. Vagotomy with pyloroplasty is the procedure of choice in most patients with duodenal ulcer. Gastroenterostomy and gastrectomy with vagotomy are procedures of necessity in certain clinical situations.

drainage. We believe that vagotomy with pyloroplasty is the best combination for most patients. We have not had a like experience with gastrectomy alone done as the primary procedure for duodenal ulcer. Nevertheless, we have seen many patients with complications following gastrectomy done elsewhere, and we have been able to compare this group with our group of patients who had vagotomy and subsequent complications.

An examination was made of the records of several leading clinics where a series of patients was treated by gastrectomy alone and in some instances another series was treated by vagotomy and an accessory surgical procedure (see Table 1).

The experience at the Cleveland clinic^{3, 4} was that the mortality rate and the ulcer recurrence rate associated with gastrectomy were nearly three times greater than the rate for vagotomy with either pyloroplasty or gastroenterostomy. Crile's report did not mention the incidence of complications. From Wangensteen's clinic, a report by Rauch⁸ showed that the most striking statistical finding was the high incidence of complications following gastrectomy—34 per cent. The mortality rate was 3.4 per cent. The ulcer recurrence rate was low, comparing favorably with Crile's vagotomy group. At the University of Michigan Hospital, the report of Pollard⁷ showed no mortality in 21 cases of gastrectomy with vagotomy. The ulcer recurrence rate for this group was lower than it was for gastrectomy alone. Muir⁶ in Scotland reported an unusually high incidence of complications following gastrectomy alone. Garlock and Lyons⁵ likewise noted a high incidence of complications; the mortality rate of 2.1 per cent, however, was remarkably low. The ulcer recurrence rate was 3.7 per cent. In Colp's¹³ series, the mortality rate and incidence of complications seemed to favor gastrectomy. However, the ulcer recurrence rate was

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TABLE 1.—Mortality, incidence of complications and recurrence of ulcer after subtotal gastrectomy. Experience of other clinics.

Source of Data	Number of Cases	Mortality (Per Cent)	Complications (Per Cent)	Ulcer Recurrence (Per Cent)
Crile ^{3, 4}	78 gastrectomy	4.1	.....	4.1
Cleveland Clinic	83 vagotomy with pyloroplasty or gastroenterostomy	1.3	.....	1.3
Wangensteen	702 gastrectomy	3.4	34.0	1.5
University of Minnesota Hospital				
Pollard and co-workers ⁷	52 gastrectomy	6.1	.....	9.4
University of Michigan Hospital	21 gastrectomy with vagotomy	0.0	.....	4.7
Muir ⁶	124 (cancer in 17 cases)	....	47.0	....
Western Infirmary, Glasgow				
Garlock and Lyons ⁵	187	2.1	22.0	3.7
Mt. Sinai Hospital, New York				
Colp	210	0.0	9.0	5.0
Mt. Sinai Hospital, New York	155 gastrectomy with vagotomy	0.7	15.0	0.0

TABLE 2.—Mortality, incidence of complications and recurrence of ulcer associated with vagotomy-pyloroplasty. Experience at Veterans Administration Hospital, Long Beach

Source of Data	Number of Cases	Mortality (Per Cent)	Complications (Per Cent)	Ulcer Recurrence (Per Cent)
Weinberg	180 (followed 2 to 6 years)	0.5	5.55	2.8
Long Beach VA Hospital				(All incomplete vagotomy)

definitely in favor of vagotomy as an added procedure. In most of these reports, the addition of vagotomy seemed to have improved the situation in one respect or another. A more recent report by Baltz² and associates includes this significant statement:

“This study strongly suggests that the addition of vagotomy contributes valuable protection, and we feel that this procedure should be done at the original operation and not reserved for the unfortunate patient who develops a jejunal ulcer following gastric surgery.”

In contrast with the experience of other clinics (Table 1), the experience at the Veterans Administration Hospital at Long Beach with vagotomy-pyloroplasty is shown in Table 2. The outstanding features of the experience with this procedure were the low mortality rate, low complication rate and low ulcer-recurrence rate.

As a preface to evaluation of our experience with complications in the group of patients who had vagotomy-pyloroplasty, it may be noted that Allen¹ and Warren and Meadows¹¹ stated that the incidence of complications in patients who had gastrectomy was about the same as in those who had vagotomy with or without accessory surgical procedures, both usually being in the neighborhood of 10 per cent. However, the data on vagotomy-pyloroplasty at the VA hospital at Long Beach¹² indicate that the percentage of persistent disabling complications with this procedure is only 5.55 per cent¹² (Table 2).

A study was made of a group of 27 cases in which the patients had had subtotal gastrectomy for duodenal ulcer done elsewhere. The basis of selection was primarily the completeness of the diagnostic study which in every case included gastroscopic examination. Cases of gastrectomy for carcinoma, and for benign ulcer, were of course excluded, as were cases in which gastrectomy was combined with vagotomy. The number and the variety of complications which occurred in the group of 27 cases are shown in Table 3. The frequency of inflammatory disease noted at gastroscopy, was impressive: Seventeen cases of diffuse gastritis, six cases of peristomal gastritis and three cases of jejunitis. Recurrent ulceration was observed in seven cases, and one patient had a gastric ulcer (gastroscopically confirmed) which is a relatively rare form of recurrence. Also impressive was the number of patients who had vomiting as an outstanding complaint. The authors believe that these symptoms were related to the gastritis observed gastroscopically. Two of the more unusual complications of gastrectomy were noted in the series—an inadvertent gastroileostomy and intussusception of the jejunum through the stoma. There are, of course, other complications which are reported in the literature, and some of them eventually cause death. Complications of that kind, usually not seen on the Medical Service, include disruption or leakage of the suture line at the duodenal stump with subsequent peritonitis, injury to the pancreas and its ducts, injury to the bile ducts and postoperative

TABLE 3.—Relative incidence of complications of subtotal gastrectomy for duodenal ulcer (27* cases studied at Veterans Administration Hospital, Long Beach)

Gastritis, diffuse	17	Dumping syndrome	5
Gastritis, peristomal	6	Diarrhea	5
Jejunitis	3	Steatorrhea	1
Dilated afferent loop	2	Hypoglycemic reactions ..	3
Gastric ulcer	1	Vomiting	14
Stomal ulcer	4	Recurrent hemorrhage	8
Jejunal ulcer	2	Anemia	7
Large stoma	1	Weight loss	9
Gastroileostomy	1		
Intussusception of jejunum into stomach remnant	1		

*Gastroscopic examination performed in all 27 cases.

hemorrhage. The data in Table 4 show the lesser incidence and smaller variety of complications in a series of patients who had vagotomy and pyloroplasty. The authors have unpublished data¹² also indicating that the incidence of persistent complications after vagotomy-pyloroplasty (5.5 per cent) is less than it is when any other accessory procedure is combined with vagotomy. There are two complications that sometimes occur after vagotomy-pyloroplasty which are seldom seen following gastrectomy. These are cardiospasm and gastric retention.

The most important difference between the complications of gastrectomy and the complications of vagotomy-pyloroplasty cannot be put into statistical form. The complications of gastrectomy alone are usually much more complex and are likely to be more permanent or irreversible. In the authors' experience, they present great difficulties in management. The complications of vagotomy-pyloroplasty are fewer in number, are relatively simple to manage, are readily reversible and, with proper management, rarely persist beyond the first postoperative year. For example, Schindler⁹ in a gastroscopic study of patients after various surgical procedures for peptic ulcer, concluded that postoperative gastritis is least severe and least frequent in patients having pyloroplasty instead of either gastroenterostomy or gastrectomy.

The mortality rate of less than 1 per cent in the vagotomy-pyloroplasty group¹² compares very favorably with any reported mortality rate for gastrectomy. As to the recurrence of ulcer, it has been our experience¹⁰ that, where the vagotomy is complete, classical benign peptic ulcer does not recur. The insulin test in these situations cannot always be accepted with certainty because there are many factors which must be controlled to produce satisfactory test results. These factors are: (1) The refractory state of the early postoperative period; (2) gastric retention; (3) regurgitation from the duodenum or the stoma; (4) the level of hypoglycemia; and (5) the onset of postoperative gastritis.

TABLE 4.—Complications seen after vagotomy and pyloroplasty for duodenal ulcer in 180 cases (at the Veterans Administration Hospital, Long Beach)

No. of Cases*	
Cardiospasm .....	.. Transient
Gastric retention	6 Usually transient—manageable. Rarely requires surgical intervention.
Gastritis—antral	1 Rare—may be persistent.
Dumping syndrome .....	.. Transient—manageable.
Hypoglycemic reactions	2 Transient—manageable.
Diarrhea	1 May be persistent.

*The number of cases in which the complications occurred is given only when the complication persisted beyond the second postoperative year.

From comparison of data the authors come to the belief that the surgical procedure of choice in the majority of cases of duodenal ulcer in which operation is indicated is vagotomy combined with pyloroplasty. Pyloroplasty should be performed after the modification of Wilkins.¹⁴ In a number of patients, the pyloroplasty will not be feasible, owing to excessive inflammatory reaction, edema, scarring, stricture, adhesions and the like. In such situations, the choice lies between vagotomy combined with gastroenterostomy or vagotomy combined with gastrectomy. If the stomach has been well prepared for operation and is not dilated and atonic, the accessory procedure of choice is gastroenterostomy. If these conditions cannot be met, then gastrectomy combined with vagotomy is more suitable. Bleeding may also present special problems. If a patient with bleeding ulcer can be improved enough by conservative management so that operation can be done electively, then vagotomy-pyloroplasty may be sufficient. However, if the surgical approach is in the nature of an emergency, then, of course, suitable procedures should be done to control hemorrhage, such as suture-ligation of bleeding vessels, followed by vagotomy with either pyloroplasty, gastroenterostomy, or gastric resection, whichever meets the clinical situation best. If nothing is done to the ulcer bed because bleeding is not seen at operation, there is a calculated risk of additional bleeding postoperatively, even if the vagotomy is adequate. This may be due to an alteration in hemodynamic factors incident to the operation. Control of bleeding by vagotomy depends largely upon the initiation of rapid healing. In perforated ulcers, it is usually better to delay definitive operation until the emergency situation has been properly handled.

It seems to us that the whole controversy of gastrectomy versus vagotomy with accessory surgical procedures is pointless. Since experience¹⁰ has shown that complete vagotomy is the only insurance against the recurrence of ulcer, it follows that this procedure should be done with whatever other accessory sur-

gical procedure is adequate to meet the clinical situation at hand. If ulcer occurs after vagotomy, a safe assumption is that vagotomy is incomplete.¹⁰ In such a situation, if reoperation is indicated an attempt should be made to complete the vagotomy. However, it sometimes happens that vagus fibers cannot be identified at the hiatus because of adhesions, or the clinical situation may not permit extensive exploration for vagal fibers. In such circumstances, gastrectomy is the only alternative.

Veterans Administration Hospital, Long Beach.

REFERENCES

1. Allen, A. W.: Duodenal ulcer—comparative survey of immediate and interim results on two groups of patients—one treated by subtotal gastrectomy and the other by vagus resection, *Ann. Roy. Coll. Surgeons of England*, 1:235-247, 1947.
2. Baltz, J. I., Fallis, L. S., Mateer, J. G., and Barron, J.: Follow-up three-year clinical results of combined subtotal gastrectomy and subdiaphragmatic vagotomy in 108 cases of duodenal (and jejunal) ulcer, *Gastroenterology*, 26:533, April 1954.
3. Crile, G., Jr., Jones, T. E., and Davis, J. B.: Surgical treatment of duodenal ulcer—comparison of results with and without vagotomy, *Ann. of Surg.*, 130:31-37, 1949.
4. Crile, G., Jr.: Personal communication.
5. Garlock, J. A., and Lyons, A. S.: The surgical therapy of duodenal ulcer, *Surgery*, 25:352-360, 1949.
6. Muir, A.: Postgastrectomy syndromes, *Brit. J. of Surg.*, 37:165-178, 1949.
7. Pollard, H. M., Bolt, R. J., Ransom, H. K., and Orebaugh, J. E.: Results of surgical treatment of duodenal ulcer—comparison of vagotomy and subtotal gastrectomy five years postoperatively, *J.A.M.A.*, 150:1476-1479, 1952.
8. Rauch, R. F.: An evaluation of gastric resection for peptic ulcer—review of 893 cases, *Surg.*, 32:638-654, 1952.
9. Schindler, R., and Dagradi, A.: Gastroscopic observations following various types of surgery for gastroduodenal ulcer, *Surg. Gyn. and Obst.*, 100:78, Jan. 1955.
10. Stempien, Stephen J., and Weinberg, Joseph A.: Recurrence of ulcer after vagotomy, *J.A.M.A.*, 152:1593-1595, 1953.
11. Warren, R., and Meadows, E. C.: Subtotal gastrectomy or vagotomy for peptic ulcerations. *New Eng. J. Med.*, 240:367, March 10, 1949.
12. Weinberg, J. A.: Personal communication.
13. Weinstein, V. A., Druckerman, L. J., Klingenstein, P., and Colp, R.: Subtotal gastrectomy with and without vagotomy in the treatment of duodenal ulcer, *Gastroenterology*, 22:192-200, 1952.
14. Wilkins, F. B.: Pyloroplasty for gastric drainage with vagotomy, *Calif. Med.*, 78:513, June 1953.



Geriatric Patients in a Mental Hospital

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THERE IS NO NEED to repeat the well-known statistics as to the increasing life span and the increasing proportion of population in the upper age groups in the United States today. It is also well known that from this segment is coming a burdensome problem for public hospitals in general and mental hospitals in particular. Some recent figures show that the percentage of total first admissions to state mental hospitals in the age group of 70 and over ranges from 13.4 per cent in California to 27 per cent in New York, with an over-all average of 19.3 per cent for the United States as a whole.

There is, however, a pronounced lack of factual information concerning many of the medical and psychiatric aspects of this problem which is hampering efforts to plan for satisfactory solutions. It is also evident that, by reason of lack of interest or lack of attention, there is insufficient general awareness of the wide variety of psychiatric problems that are encountered in this age group. For example, during the fiscal year of 1953-54, there were admitted to California state hospitals 2,024 patients who were 65 years of age or over. Of this number, 248 (one-sixth of the total) were diagnosed as having other than senile or arteriosclerotic disease. These diagnoses covered a wide range. They included all the commonly encountered psychoses, a number of different psychoneurotic reactions, and personality disorders.

In a similar study of admissions to Napa State Hospital in the age group 65 and over, of a total of 518 consecutive admissions, 30 per cent were diagnosed as having other than senile or arteriosclerotic disorders. This probably indicates that, with increased interest and attention to detailed histories and examinations, a large number of nonorganic disorders will be noted.

Further evidence that run-of-the-mill diagnosis in this age group is sadly inadequate is to be found in a previous study by two of the authors of this paper (Simon and Malamud) demonstrating that, in a series of 505 consecutive autopsies of subjects clinically diagnosed as having either psychosis with cerebral arteriosclerosis or senile psychosis, the

• An intensive study was made of men 55 years of age and over admitted to Napa State Hospital with either senile or arteriosclerotic brain disease. A ward treatment program, combining both the medical and psychiatric approaches, was applied to one-half of such patients admitted to a state hospital, with the aim of determining what, if any, effect this program would have on the course of the illnesses.

Special laboratory studies showed: (a) Serial electroencephalograms and hospital adjustment ratings appeared to be positively correlated with the patients' clinical course; (b) In 35 per cent of cases the electrocardiographic tracings at the time of admittance were within normal limits; (c) A "pathological level" of blood bromides was found in only one of 340 consecutive admissions in this age group.

Sociopsychiatric study of 100 consecutively admitted patients revealed that: (a) 35 per cent of the patients were from the middle, and 65 per cent from the lower classes of society; (b) Only 59 per cent were admitted because of activities specifically psychotic. (c) 63 per cent needed admittance to this state hospital for observation and diagnosis, but only 44 per cent needed to stay for care and treatment; (d) In 88 per cent, specific emotional stresses were present just preceding and coincident with the clinical appearance of the organic brain syndrome.

clinical diagnosis was incorrect in 44 per cent of the cases. This is hardly better than could be provided by chance.

It was with this in mind that the Napa State Hospital and the Langley Porter Clinic set up a joint research project in early 1952 to study, as comprehensively as possible, a representative sampling of patients admitted to the Napa State Hospital falling within this age group.

A number of questions were formulated to be used as a guide in setting up this research project. These questions fell into three groups:

1. *The Clinical-Pathological Group.*

a. Are there clinical syndromes which can be correlated with the pathological findings of the various recognizable organic diseases?

b. Are there sociological and psychological factors which can be correlated with the pathological and medical findings of these organic syndromes? For example, situational stress as a contributory or

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precipitating factor, degree of premorbid social stability, premorbid personality patterns.

c. Are the pathological, sociological, medical, and psychological data quantitatively correlated with the severity of the clinical syndrome?

2. *The Socioeconomic group.*

a. What is the crisis leading to hospitalization?

b. Is the socioeconomic level correlated with admission to a state hospital for medical-psychiatric care?

c. Can patients be classified from the standpoint of selecting methods of care other than state hospitalization? For example, at home with family with additional help, in a nursing home, in a boarding home, in county or private hospitals.

3. *The Therapeutic Group.*

Can the course of a geriatric mental illness in the senile and arteriosclerotic categories be influenced by a special treatment program? For example, dietary, drugs, psychotherapy.

METHOD OF THE STUDY

The method of study is as follows:

Males 55 years of age and over who are determined clinically to have either a senile or a cerebral arteriosclerotic process are selected for the geriatrics research study by the psychiatrist in charge of the project. In order to assess statistically certain aspects of this study program, including any improvement in accuracy of clinical diagnosis and the effects of the special therapy program, the cases are alternately selected for study and control purposes. Since the inception of the project in February 1952, a total of 556 patients have been processed, half in the study group and half in the control group.

Study cases are given mental and physical examinations on admission with special emphasis on the neurological findings. In addition to the history obtained from the patient and the family by the physician, a social worker obtains an extensive history from the family or friends which includes socioeconomic information, medical background, and a sociopsychiatric history of events leading to hospitalization. In addition, a careful review of the patient's history is made in the areas of marriage, residence, income, occupation, avocation, acculturation and education. Routine examinations of urine and blood are done on admission. An x-ray film of the chest is routinely taken; and, in the first 300 study and control cases, a lateral abdominal x-ray film was taken to determine the presence of abdominal aortic calcification. In the first 340 cases taken into the program, blood bromide determinations were made at the time of admittance to hospital. Blood was drawn at this same time for the Gofman

heavy molecule lipoprotein determination. Within one week of admission, electroencephalographic and electrocardiographic tracings are recorded both for the patients included in the study and those used as controls.

Following completion of these studies, the research patient is transferred to a special treatment ward designated as the "study ward." Control patients are sent to other geriatric and medical wards after their routine admission examination. The study patient, after transfer to the study ward, is assigned to one of the ward technicians for special attention and observation. Within ten days his ward behavior is rated by a technician according to the Hospital Adjustment Scale of Ferguson, Ballachey, and McReynolds.¹ This scale is a check list of 90 items pertaining to (1) interpersonal relationships and communication, (2) self-care and social responsibility, and (3) recreation and work activity. Also, after admission to the study ward, the psychologist rates the patient's total adjustment on a "global rating scale" and performs the verbal portion of the Wechsler-Bellevue test. At three-month intervals, the patients are reevaluated as to diagnosis and clinical course in the hospital. This is done by four examinations all performed within a week of each other. A physical and mental survey is carried out by the physician. The psychological tests are again administered. The electroencephalogram and the Hospital Adjustment Scale rating are repeated. At these intervals the physician then fills out a diagnostic questionnaire check list which indicates the presence or absence of certain psychiatric, neurological and physical symptoms and signs during the course of the illness, at its onset, or in the past history of the patient.

In the event of death, every effort is made to secure permission for autopsy. The brain tissues are sent to the Langley Porter Clinic, where gross and microscopic studies are carried out. On this occasion, the fifth rating takes place: The pathological rating scales are completed indicating the pathologic diagnostic category and the location and severity of the pathologic process.

WARD TREATMENT PROGRAM

The ward treatment program for these patients includes both medical and psychiatric aspects. Each patient in the study receives daily supplements of liver, iron, and vitamins in addition to whatever specific medication is needed for medical problems.

The second phase consists of the integrated ward treatment program for these men, which takes into account the degree of physical limitation of each. The primary function of the psychiatric treatment program is to engage the patient's interest and

direct his attention toward meaningful interpersonal relationships. The various departments associated in this program include the physiotherapy, the occupational therapy, the musical therapy, the recreational therapy and the bibliotherapy departments. Additionally, a volunteer worker from the community comes in biweekly to supervise the playing of a "talking-book" record.

At weekly ward conferences, members from the various departments meet with the physician to go over an individual, illustrative case in detail. In these meetings integration of the treatment program is achieved for the individual patient, and the efforts of these different departments are coordinated in the total ward program.

Each study patient admitted to this special ward is assigned to the group therapy section of one of the ward technicians. Regular group psychotherapy meetings are conducted by this technician with his patients. The technicians in turn receive group supervision from the physician. In these meetings, which are also attended by the ward social worker, group dynamics of the patient groups are discussed and the psychodynamics of the individual patient are worked out. These meetings have also been significant in acting as extensions of the eyes and ears of the physician and social worker. In addition to this, the meetings with the technicians have provided opportunity for the entire ward personnel group to integrate many separate pieces of information into meaningful wholes which have provided a better basis for understanding care of the patient, tailored more closely to his individual psychic needs. In these latter weekly group discussions, any change in the course of the organic processes can be more easily noted and followed. Very frequently it has been possible to correlate these symptoms of organic cerebral change with coincident events of psychiatric significance; for example, the change in the rate of progression of a senile brain process occurs not in a vacuum but as an event related to other events. The observation has been made that, much more frequently than chance would allow, there has been a distinct correlation between (for example) improvement in electroencephalographic rhythm and wave integration, the hospital adjustment score, and the clinical psychiatric picture.² Not infrequently the electroencephalogram has seemingly announced ahead of time that a patient was going to improve or fail.

RESULTS

Results of the study program to date are divided into: (1) general comparisons of the study and control programs, (2) the results of specific laboratory determinations, and (3) certain detailed observa-

TABLE 1.—Crisis events which precipitated hospitalization

I. UNREALISTIC OR ANTISOCIAL PSYCHOTIC BEHAVIOR:	
a. Assaultiveness	20
b. Suicidal attempts	11
c. Delusions, hallucinations, and inability to manage self	26
d. Inappropriate sexual behavior.....	2
II. NONAGGRESSIVE BEHAVIOR:	
a. Confused, wandered or noisy and irritable.....	36
b. Stroke	4
c. Alcoholism	20

tions of 100 consecutively admitted patients of the study group.

The age range of the patients in the study is 55 to 97 years; the mean age is 75.2 years and the median age 74 years. Of the first 200 patients admitted to the study group, 14.5 per cent died in the first month after admission and, by the end of three months 28 per cent had died. Data thus far indicate that there are no significant differences between the study and the control patients as to release rates from the hospital. The same is true with regard to the rate of deaths. As the study program has progressed, however, a trend toward improvement in the release rates of the study patients has been noted.

Among the results of various specific laboratory procedures, the following can be reported: A detectable level of blood bromide on admission was found in only one of the first 340 cases. Of 400 consecutive admission electrocardiographs, 35 per cent were within normal limits. This includes the group showing no myocardial changes but some abnormality of rhythm. Twenty-four per cent showed changes suggestive of myocardial damage, and 41 per cent showed definite evidence of damage.

Detailed observations were made on 100 consecutively admitted study patients in an effort to answer certain questions. The first question was, "What are the crises which lead to state hospitalization?" As can be seen from Table 1, there was some action on the patient's part which was considered symptomatic of psychosis in 59 of the 100 cases. Of these 59, 20 became assaultive and 11 were suicidal. In 22 cases delusions or hallucinations were present. In four cases defective judgment in the management of self or resources was the specific item, and in two cases inappropriate sexual behavior led to institutionalization. The method of determining the crises leading to commitment was to select the most serious item mentioned on the petition of mental illness.

Of the 41 patients without overt indication of psychosis, 33 were admitted solely because of confusion or wandering tendencies; three because of irritable and noisy behavior; four because of having hemiplegia with no other reason stated on the petitions (two of the four were comatose and in flaccid paralysis and the other two showed no antisocial or

psychotic symptoms). In one case the symptom of alcoholism necessitated commitment.

The second question was, "What proportion of patients might have been handled by means other than commitment?" After careful study and observation of the 100 patients, it was the opinion of the authors that 44 needed the facilities and care offered in this state hospital. An additional 19 needed the diagnostic facilities of the institution but, after diagnostic procedures, would have been suitable candidates for other types of care. Where could the remainder of the patients have been handled? Twenty-eight were candidates for nursing homes; 17 appeared to need the services of a county or private hospital; eight could have been handled at home if additional help was available, and one could have been at home without additional help being present; two could have been in boarding homes.

A third question was, "What, if any, emotional factors were coincident with the onset of the chronic brain syndrome?" In order to differentiate and recognize occurrences that were anxiety-producing for the patients just before or coincident with the onset of the illness, a detailed psychiatric study of their lives for this interval was carried out. Significantly, stressful emotional situations were present in the lives of 88 of the men just preceding the onset of the mental symptoms. As to the remaining 12, there was an apparent absence of emotionally upsetting events in two cases; the history of the life situation at the onset of the chronic brain syndrome was not obtainable in the remaining 10 cases because of lack of sources of information. For 72 of these men the psychic trauma was a loss—as examples, the death of someone close, the loss of contact with the family because of active rejection or passive cessation of visits, loss of job (that is, retirement), the loss of independence and/or the home, and the loss of physical strength and health. The loss of ability to live up to self-determined ideals and standards was apparently of critical importance in five cases; for example, a father who had previously been very competent in caring for his family suddenly was confronted by a daughter and her three children after the daughter's husband had deserted her and left her without means of support. The patient did not have enough money to care for the daughter.

In addition to the 72 cases outlined, in another 12 the stressful item appeared to be a threat to the way

TABLE 2.—Events coincident with and just preceding clinical onset of brain syndrome

I. LOSSES:	
a. People:	
1. Deaths	17
2. Rejected by family or cessation of family visits	13
b. Occupation	13
c. Independence and/or home.....	17
d. Health	7
e. Ability to live up to self-ideals.....	5
Total	72
II. THREAT TO WAY OF LIFE:	
a. Fears of loss of people.....	6
b. Threat of loss of home or job.....	6
III. PREVIOUSLY PSYCHOTIC WITH AGGRAVATING EXTERNAL CIRCUMSTANCES AT ADMISSION	4
IV. HISTORY AT ONSET OF ILLNESS UNKNOWN.....	10
V. EMOTIONAL FACTORS ABSENT.....	2

of life—for example, fear of losing a wife or child because of illness, fear of being displaced in wife's interest by a newly arrived grandchild. External stressful circumstances brought about the reappearance of a previously present psychosis in four more cases (Table 2).

The fourth specific detailed observation made in these 100 cases was to determine from which socioeconomic group these patients originated. To do this they were rated according to: (a) occupation, (b) residence, (c) source of income, and (d) education. It was found that none of the patients came from either of the upper social classes. Fourteen were from the upper-middle and 21 from the lower-middle classes. Thirty-one derived from the upper-lower and 34 from the lower-lower social classes. In other words, two-thirds of the patients came from the lower social strata.

ACKNOWLEDGMENT

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REFERENCES

1. McReynolds, F., and Ferguson, J. T.: Clinical Manual for the Hospital Adjustment Scale. Board of Trustees of the Leland Stanford, Jr., University, Stanford, 1953.
2. Sheridan, F. P., Yeager, C. L., et al: Electroencephalography as a diagnostic and prognostic aid in studying the senescent individual—a preliminary report, Jour. Gerontol., 10:53-59, Jan. 1955.

Anemia

Differentiating Between Thalassemia Minor and Iron Deficiency

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THALASSEMIA MINOR is an important hematologic condition because, while the conditions observed in study of the blood may closely mimic those that are present in iron deficiency anemia, the therapy is radically different. Thalassemia is a congenital, familial disorder of hemoglobin production characterized by small, pale, misshapen erythrocytes.^{1,3,4} These cells have a shortened life span,^{6,7} but extracorporeal mechanisms are not involved and cells from healthy donors survive normally in patients who have the disease. The disease is common among persons of Italian, Greek or Chinese extraction, but is extremely rare in other nationalities.

The homozygous form—thalassemia major (Cooley's anemia, Mediterranean anemia)—is a serious disorder characterized by severe anemia and hemolysis, extreme variations in the size and shape of the erythrocytes, persistence of fetal hemoglobin,⁹ erythroblastosis, jaundice, hepatosplenomegaly, and changes in the roentgenographic appearance of the bones.³ Frequent transfusions are necessary to sustain life, and few patients survive to adulthood.

The heterozygous form—thalassemia minor—is essentially asymptomatic; anemia is only mild, nucleated erythrocytes are rare and signs of hemolysis, if present at all, are minimal. Serum iron levels² and icterus index are normal or slightly elevated; hemoglobin has normal electrophoretic mobility and alkali resistance. Osmotic fragility is greatly reduced. The chief hazard in the condition is its resemblance to iron deficiency anemia, hence causes patients and physicians unnecessary concern and frequently leads to useless and even harmful treatment with iron.

Iron deficiency anemia in adults is caused by loss of blood, while in childhood faulty diet is to blame. The anemia results from a quantitative defect of hemoglobin production. There is no hemolysis, erythrocytes survive normally, and serum iron levels and icterus index tend to be low. As in thalassemia minor, the hemoglobin has normal electrophoretic mobility, fetal hemoglobin is not present and osmotic

• Many of the conditions noted in examination of the blood of patients with thalassemia minor are much like those observed in patients with iron deficiency anemia. A study was made of similarities and contrasts between blood and bone marrow features in both conditions for purposes of differential diagnosis. A salient distinction is that bone marrow hemosiderin is present in normal amount in patients with thalassemia minor, but not in those with iron deficiency anemia. If therapy with iron does not restore hemoglobin values to normal, thalassemia minor is strongly suspect. Even in the latter disease, however, there may be small fluctuations in hemoglobin values, particularly in pregnancy. One must be alert to this possibility lest a slight, fleeting increase in hemoglobin be mistakenly ascribed to iron therapy.

fragility is greatly decreased.⁵ Infection or azotemia, in which iron storage may be ample but utilization impaired, occasionally causes a slightly hypochromic anemia, but in these conditions the underlying disease is usually apparent.

The morphologic features of blood and of bone marrow may be strikingly similar in thalassemia minor and iron deficiency anemia. The erythrocytes are hypochromic and microcytic and they vary considerably in size and shape. In the marrow, nucleated erythrocytes are usually increased.

PRESENT STUDY

Comparisons and distinctions were made between some of the hematologic features observed in a group of patients with thalassemia minor and those observed in a group with iron deficiency anemia, all of whom were examined by the authors in the period 1952-1955.

Hematologic Data

Iron deficiency anemia. Results of examination of the blood and of marrow analysis of the patients with iron deficiency anemia are presented in Tables 1 and 2. The diagnosis was established eventually by return of erythrocyte and hemoglobin values to normal following iron medication. Erythrocyte counts were sometimes high but did not exceed normal; in many cases hemoglobin values were very

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TABLE 1.—Features of peripheral blood in iron deficiency anemia

Case No.	Age, Years	Sex	Erythrocytes (Million per cu. mm.)	Hemoglobin (Gm. per 100 ml.)	Hemoglobin Value (Per Cent)	Packed Cell Volume (Per Cent)	Mean Corpuscular Volume (Cubic Micra)	Mean Corpuscular Hemoglobin Concentration (Per Cent)	Mean Corpuscular Hemoglobin (Micramicrograms)	Reticulocytes (Per Cent)	Target Cells (Per 1000)	Stippled Cells (Per 1000)
1.	37	F	3.80	10.2	70	35	91	29	27	1.0	1	0
2.	61	F	4.40	10.0	69	35	80	29	23	2.9	0	2
3.	1	M	5.04	9.6	66	34	67	28	19	0.7	0	0
4.	5/12	M	3.90	9.0	62	30	77	30	23	0.2	2	0
5.	39	F	4.10	8.9	61	33	81	27	22	1.4	0	0
6.	5/12	M	4.25	8.8	60	....	....	....	20	1.1	1	4
7.	3½	F	5.76	8.5	59	....	....	....	15	1.6	1	0
8.	39	F	4.17	8.1	56	32	72	25	19	4.8	0	0
9.	9 1/12	F	5.64	7.2	50	32	57	22	13	2.4	0	0
10.	14	M	5.40	7.0	48	30	56	23	13	3.6	..	..
11.	1	F	5.86	6.6	46	30	51	22	13	1.3	6	0
12.	1	F	5.33	6.5	45	....	....	....	12	1.0	1	2
13.	7 1/12	M	3.63	6.2	42	....	....	....	17	2.6	5	0
14.	72	M	3.50	6.1	42	25	71	24	17	6.0	0	0
15.	9/12	F	3.71	5.7	39	23	62	25	15	1.0	0	0
16.	43	M	3.35	5.4	37	23	69	24	16	5.4	3	0
17.	52	F	2.90	5.4	37	26	90	21	19	....	..	..
18.	8/12	M	3.54	5.4	37	....	....	....	15	4.8	4	0
19.	2½	F	1.62	1.8	12	10.5	66	17	11	2.5	6	0

TABLE 2.—Features of bone marrow in iron deficiency anemia

Case No.*	Nucleated Red Cells per 1000 Leukocytes	Normoblast (Per Cent)	Late Erythroblast (Per Cent)	Early Erythroblast (Per Cent)	Pro Erythroblast (Per Cent)	Mitotic Red Cells (Per Cent)	Hemosiderin
2.	306	22	66	6.5	4.5	1	0
3.	284	9.5	87	1	0.5	2	0
6.	206	30	59	6	5	0	0
7.	209	34	60.5	2	1.5	2	0
8.	139	62.5	31	3.5	1.5	1.5	0
9.	549	16.5	75	6	1	1.5	0
10.	512	26.5	64.5	4.5	3.5	1	0
11.	291	55	42.5	1	0	2.5	0
12.	410	36	53	5	3	3	0
13.	312	18.5	72.5	6.5	0.5	2	0
14.	306	42.5	54.5	0.5	0.5	2	0
15.	684	79	18.5	0.5	0	1	0
16.	877	23	66	6	2	3	0
17.	383	24	61.5	8.5	4.5	1.5	0
18.	674	37	59.5	2	0.5	1	0
19.	429	23	62	4	0.5	1.5	0
Average	407	33.4	58.8	4.4	1.7	1.7	..

* Case numbers correspond to those in Table 1.

low. Erythrocyte size (mean corpuscular volume—MCV), hemoglobin content (mean corpuscular hemoglobin—MCH) and hemoglobin concentration (mean corpuscular hemoglobin concentration—MCHC) were diminished about equally. The presence of target cells and stippled cells and higher than normal numbers of reticulocytes was noted only occasionally. In the bone marrow, hemosiderin⁸ was uniformly absent and the number of nucleated erythrocytes was increased, with a moderate preponderance of late erythroblasts. For the hemosiderin determination the marrow sample was aspirated into a syringe previously rinsed with a 10 per cent solution of disodium versenate, ejected onto a slide, and the liquid part blotted off. After staining, hemosiderin was seen as blue granules in narrow particles only, first identified under low magnification. Grading was

done as follows: 0, none; 1, very rare granule; 2, slight; 3, moderate; 4, heavy. (Prussian blue stain: 4 grams potassium ferrocyanide diluted to 20 ml. with water. Concentrated hydrochloric acid added until a permanent precipitate forms. Filter and cover dried smears with filtrate for 30 minutes. Use only glassware made iron-free by washing in dilute nitric acid.)

Thalassemia minor. Hematologic data on the patients with thalassemia minor are given in Tables 3 and 4. In each case the diagnosis was made by the lack of response to iron treatment and by the observation of similar erythrocytic abnormalities in members of the family of the patient. All patients were of Italian, Greek or Chinese extraction. A greater than normal number of erythrocytes was observed occasionally. Hemoglobin values were over 9 gm. per

TABLE 3.—Features of peripheral blood in patients with thalassemia minor

Case No.	Age, Years	Sex	Erythrocytes (Million per cu. mm.)	Hemoglobin (Gm. per 100 ml.)	Hemoglobin Value (Per Cent)	Packed Cell Volume (Per Cent)	Mean Corpuscular Volume (Cubic Micra)	Mean Corpuscular Hemoglobin Concentration (Per Cent)	Mean Corpuscular Hemoglobin (Micramicrograms)	Reticulocytes (Per Cent)	Target Cells (Per 1000)	Stippled Cells (Per 1000)
1.	45	M	5.85	13.2	91	45	72	29	23	0.7	62	0
2.	44	F	6.00	12.6	87	40	67	31	21	1.0	113	1
3.	32	F	6.76	12.5	86	43	64	29	18	....	..	..
4.	25	F	6.50	12.4	86	41	63	30	19	2.3	..	..
5.	52	F	6.00	11.9	82	44	73	27	20	1.1	..	..
6.	26	F	5.89	11.7	81	40	68	29	20	1.3	0	6
7.	26	F	5.65	11.5	79	39	69	30	22	0.6	5	0
8.	37	F	4.87	11.5	79	40	82	29	24	1.6	8	0
9.	56	F	5.72	11.2	77	39	68	28	19	4.6	1	1
10.	29	M	5.70	10.8	74	44	77	25	19	9.0	12	0
11.	27	F	5.10	10.6	73	40	79	27	21	3.7	..	..
12.	30	F	5.36	10.3	71	38	71	27	19	2.0	13	0
13.	2	F	5.36	10.2	70	37	69	28	19	2.3	25	2
14.	6	F	5.10	10.2	70	34	67	30	20	....	..	..
15.	48	F	5.00	10.0	70	40	80	25	20	4.8	1	0
16.	45	F	4.91	10.0	70	....	....	....	20	5.3	2	18
17.	3	M	5.33	9.9	68	35	66	28	19	1.5	3	5
18.	5	F	5.45	9.9	68	36	66	27	18	....	..	..
19.	37	F	4.60	9.9	68	36	78	27	21	1.1	5	4
20.	55	F	4.56	9.8	67	36	79	27	21	4.3	1	8
21.	33	F	6.08	9.3	64	34	56	27	15	....	..	..
22.*	29	F	4.66	8.4	58	31	67	27	18	0.8	4	0
23.*	23	F	4.27	8.2	58	38	64	29	19	5.9	0	23

* Pregnant.

TABLE 4.—Features of bone marrow in patients with thalassemia minor

Case No.†	Nucleated Red Cells per 1000 Leukocytes	Normoblast (Per Cent)	Late Erythroblast (Per Cent)	Early Erythroblast (Per Cent)	Pro Erythroblast (Per Cent)	Mitotic Red Cells (Per Cent)	Hemosiderin‡
2.	540	18	78	2.5	0	1.5	3+
10.	1032	12	78	7	2	1	4+
15.	601	32.5	51.5	8.5	1.5	6	4+
17.	168	14	79.5	3	0	3.5	2+
22.*	148	19	74.5	3.5	0	3	0
A.‡	722	13	81	3	0	3	3+
B.‡	353	17.5	73	6	1	2.5	3+
Average	509	18	73.6	4.8	0.6	3.0	..

* After fifth pregnancy.

†Normal 1+ to 2+.

‡Case numbers correspond to those in Table 3, except that Cases A and B are not previously listed.

100 ml. of blood in all but the two pregnant patients. In many cases the blood contained target and stippled cells, and in some cases there were slightly increased numbers of reticulocytes. The erythrocyte size (MCV) and hemoglobin content (MCH) showed a greater degree of reduction than did hemoglobin concentration (MCHC). Bone marrow hemosiderin was excessive in all but one patient. The number of nucleated erythrocytes was increased, with a great preponderance of late erythroblasts.

DISCUSSION

Severe hypochromic anemia (hemoglobin less than 9 gm. per 100 ml. of blood) rarely presents a problem in differential diagnosis, since it most frequently results from iron deficiency, the cause of

which is usually apparent. It is seldom due to thalassemia minor except during pregnancy.

Mild or moderately severe hypochromic anemia (hemoglobin more than 9 gm. per 100 ml. of blood) may, however, be more difficult to diagnose accurately. Both thalassemia minor and iron deficiency have common causes and the hematologic features in the two conditions may be similar. In thalassemia minor the peripheral blood may provide several diagnostic clues, such as the presence of target cells and stippled cells, elevated reticulocyte counts, erythrocyte values above normal, and mean corpuscular hemoglobin concentration only slightly below normal; but these features are not necessarily present and some or all of them are seen occasionally in iron deficiency anemia. It is the bone marrow, stained for determination of iron content—hemosiderin—

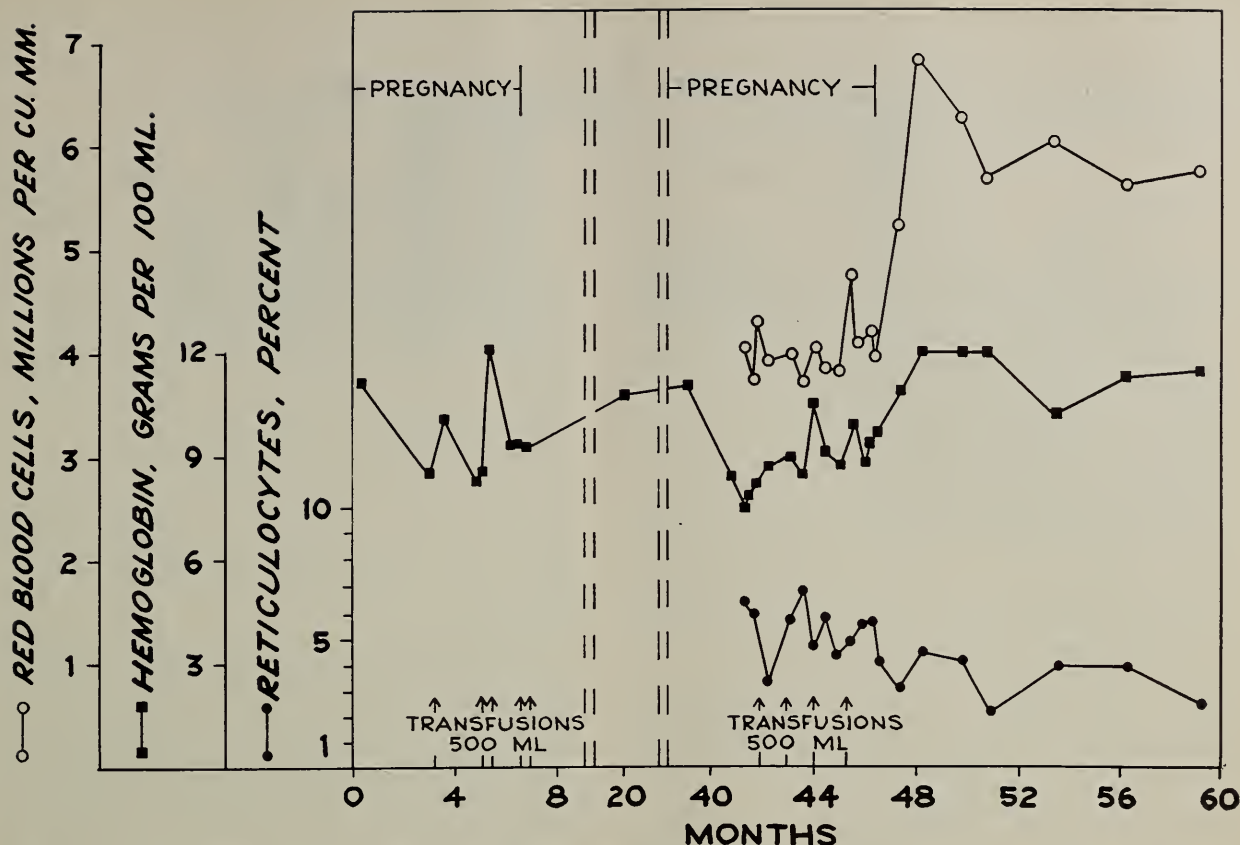


Chart 1.—The patient, about 24 years of age, had thalassemia minor. This chart illustrates great discrepancy between red cell and hemoglobin values, fluctuation in levels, red cell values above normal, chronic elevation of reticulocyte counts and exacerbation of anemia during pregnancy.

that is of the greatest diagnostic value. Here a clear-cut difference exists between the two conditions. In thalassemia minor, iron is abundant in the tissues and large amounts of hemosiderin are found in the bone marrow. In iron deficiency all body tissues are depleted of iron; there is no hemosiderin in the marrow.

Even so, for final diagnosis of hypochromic anemia, a therapeutic trial with iron should be given. With administration of 0.2 gm. of ferrous sulfate three times daily, hemoglobin values should return to normal in six to eight weeks in patients with iron deficiency anemia, provided there is no loss of blood or serious intercurrent illness. If hemoglobin values do not recover, particularly if the patient is of Italian, Greek or Chinese ancestry, thalassemia minor is strongly suggested. Unsustained hemoglobin rises of 10 to 20 per cent may occur in thalassemia minor; such fluctuations, which may be particularly striking during pregnancy, necessitate caution in evaluating the effect of therapy (see Chart 1). In a patient with thalassemia minor who has ample hemosiderin in the bone marrow, further iron by mouth is useless and iron given parenterally is harmful.

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REFERENCES

1. Baty, J. M., Blackfan, K. D., and Diamond, L. K.: Blood studies in infants and in children. I. Erythroblastic anemia; a clinical and pathologic study, *Amer. J. Dis. Child.*, 43:667, 1932.
2. Cartwright, G. E., Huguley, C. M., Ashenbrucker, H., Fay, J., and Wintrobe, M. M.: Studies on free erythrocyte protoporphyrin, plasma iron and plasma copper in normal and anemic subjects, *Blood*, 3:501, 1948.
3. Cooley, T. B., and Lee, P.: A series of cases of splenomegaly in children, with anemia and peculiar bone changes, *Trans. Amer. Pediat. Soc.*, 37:29, 1925.
4. Dacie, J. V.: The haemolytic anaemias, congenital and acquired. Grune and Stratton, 1954.
5. Daland, G. A., Worthley, K.: The resistance of red blood cells to hemolysis in hypotonic solutions of sodium chloride, *J. Lab. Clin. Med.*, 20:1122-1136, 1935.
6. Hamilton, H. E., Sheets, R. F., and DeGowin, E. L.: Studies with inagglutinable erythrocyte counts. II. Analysis of mechanisms of Cooley's anemia, *J. Clin. Invest.*, 29:693, 1950.
7. Kaplan, E., and Zuelzer, W. W.: Erythrocyte survival studies in childhood. II. Studies in Mediterranean anemia, *J. Lab. Clin. Med.*, 36:517, 1950.
8. Rath, C. E., and Finch, C. A.: Sternal marrow hemosiderin, method for measurement of available iron stores in man, *J. Lab. & Clin. Med.*, 33:81, 1948.
9. Singer, K., Chernoff, A. I., and Singer, L.: Studies on abnormal hemoglobins. I. Their demonstration in sickle-cell anemia and other hematologic disorders by means of alkali denaturation, *Blood*, 6:413, 1951.

Anemia in Patients with Neoplastic Diseases

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THE FREQUENCY AND SEVERITY with which anemia occurs in malignant states is surprisingly high.^{1, 4, 9} Although satisfactory evidence is scanty, experience indicates that death in association with severe degrees of anemia is all too frequently observed in patients with malignant disease. Until a cure for cancer and related diseases is available, physicians are obligated to maintain the lives of their patients for as long a period and in as comfortable a state as possible. With proper management, patients with malignant disease may, in many instances, be maintained for a surprisingly long period and in excellent physical condition, almost entirely normal in activity. The recognition, the evaluation and the treatment of the problem of anemia in the care of patients with malignant disease is the subject of this presentation.

METHODS

The records of 158 patients with various malignant diseases in whom the diagnosis was confirmed by biopsy or autopsy were selected for review. The hemoglobin content had been determined by the Leitz photoelectric colorimeter model LCZ, which was standardized by the Van Slyke method and more recently by the cyanmethemoglobin standard provided by the College of American Pathologists. In 12 normal volunteers the average hemoglobin per 100 ml. of blood was 12.9 gm. (range 11.5 to 14.9 gm.) at the time of study. A significant degree of anemia was considered present, therefore, when the hemoglobin content was less than 11.0 gm. per 100 ml. The recognition of anemia due to chronic but subtle loss of blood, to hemolytic mechanisms or to impaired erythropoiesis was accomplished by simple procedures readily available in standard clinical laboratories¹¹ or in most office facilities.³

OBSERVATIONS

Incidence of Anemia

Anemia was present with the following frequency in a group of 158 patients with malignant disease

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• A specific and characteristic type of anemia is not a feature of all malignant disease. To the contrary, the nature of the anemia will depend upon the causative mechanism, of which blood loss and accelerated erythrocyte removal appear to be the most frequently seen and the most clearly defined.

Recognition of anemia due to loss of blood is relatively simple if the subtlety of blood loss in the stool is borne in mind and persistent testing to demonstrate it is carried out. Indeed, anemia characterized by chronic loss of blood in men can only mean chronic gastrointestinal bleeding if certain rare hemoglobin abnormalities can be ruled out.

Anemia due to accelerated erythrocyte removal may also be recognized by simple measures. After transfusions raise hemoglobin values to near normal levels, the disappearance of the transfused blood and the rapid return of the pretransfusion severity of anemia are good evidence of the presence of such a mechanism, if blood loss can be ruled out.

Adequate management of the anemia of malignant disease depends upon a clear understanding of the various mechanisms involved. It is highly probable that attention to this feature will, in many instances, significantly prolong the productive life of persons with malignant disease.

of various types: Cancer, 55 per cent; lymphoma,* 77 per cent; chronic lymphocytic leukemia, 75 per cent; chronic granulocytic leukemia, 95 per cent; acute leukemia, 97 per cent (see Chart 1).

Type of Anemia

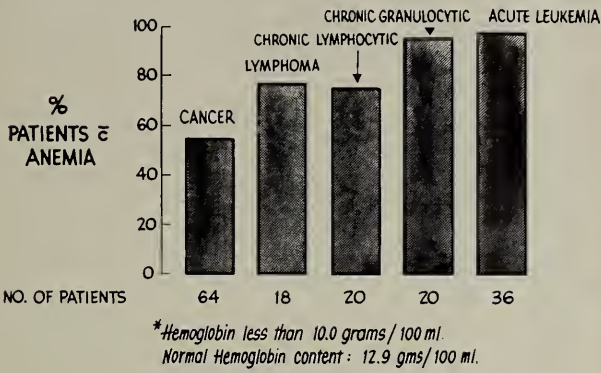
In each group there were examples of loss of blood, of hemolytic mechanisms associated with accelerated removal of erythrocytes, and of bone marrow changes associated with impaired erythrocyte production. However, the data were not sufficiently complete to warrant conclusions as to the frequency or relative importance of any of these mechanisms. This aspect is at present under study.

Severity of Anemia

The lowest average hemoglobin recorded in the various groups of patients during the period of hospitalization is shown in Chart 2. That anemia in patients with malignant disease may be severe appears to be well documented. Particularly is this true for patients with the various types of leukemia.

*Including patients with Hodgkin's disease, lymphosarcoma, giant follicular lymphoblastoma and reticulum cell sarcoma.

Chart 1.—Incidence of anemia (hemoglobin less than 10.0 gm. per ml.) in 158 patients with malignant disease.



DISCUSSION OF OBSERVATIONS

Significance

These observations agree with previous reports on the incidence of anemia in patients with malignant disease.^{1, 4, 9} Recognition of the high incidence is of utmost importance, for severe anemia may have, *per se*, profoundly deleterious and even fatal consequences. The arterial oxygen supply in the anemic state may be profoundly reduced,⁷ leading to metabolic defects of significant degree. In such circumstances there is added an increased strain upon vital organs such as the cardiovascular system. Compensatory efforts to meet the metabolic need for a greater supply of oxygen, such as cardiac hypertrophy, lead in turn to a greater intrinsic requirement for oxygen.¹¹ This fact has particular significance in persons of the older age groups in whom degenerative vascular disease has already placed restrictions upon the capacity of the heart and vessels to meet the need for increased activity over a prolonged period. Indeed, acute coronary insufficiency, myocardial infarction and congestive heart failure have each been reported to follow the onset of severe anemia.⁵ A thorough appreciation of the nature and consequences of anemia in malignant states of all ages appears therefore to be warranted.

Causes

Anemia may result from one or more of several mechanisms (Table 1). Loss of blood with its resultant anemia is usually self-evident. However, a profound degree of anemia may appear long before patient or physician has become aware of the presence of blood in the stools, due to gastrointestinal bleeding. About this mechanism nothing more need be said other than to remind of the value of the repeated search for blood in the stool in all patients with anemia in whom the cause is not obvious.

Factors causing a *retarded production* of blood are very poorly understood. This is largely owing to the fact that, until recently, there has been no

Chart 2.—Severity of anemia in 158 patients with malignant disease.

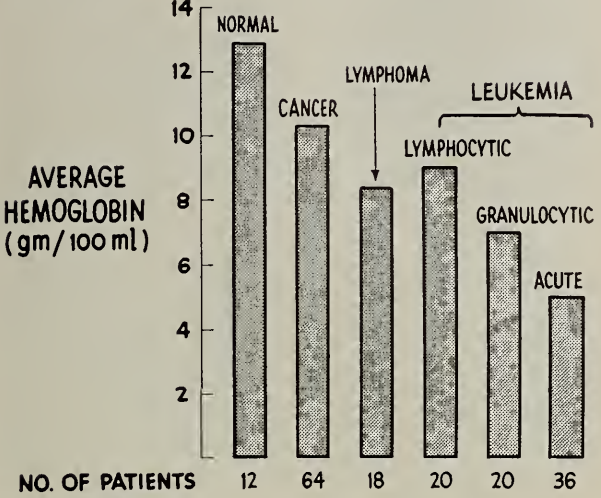


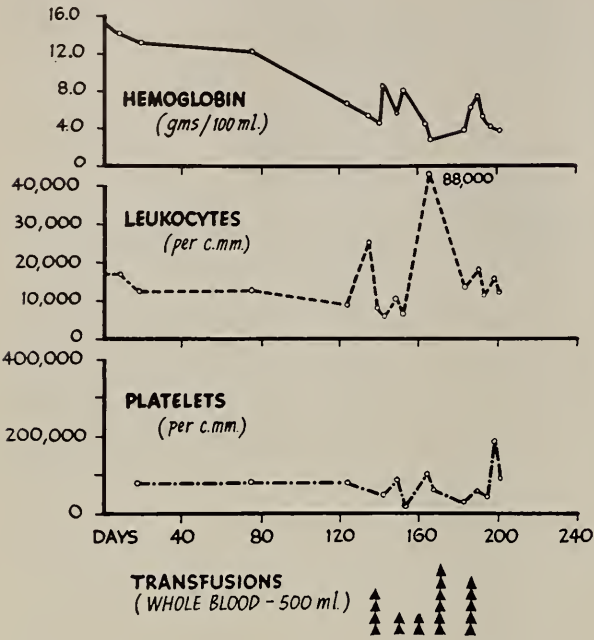
TABLE 1.—Causes of anemia in malignant disease

Primary Mechanism	Cause
BLOOD LOSS	1. Erosion of vessel 2. Thrombocytopenia 3. Circulating anticoagulant
ACCELERATED ERYTHROCYTE REMOVAL	1. Antibody 2. Hyperactivity of reticuloendothelial system 3. Unknown
RETARDED ERYTHROCYTE PRODUCTION	1. Tumor toxin ? 2. Tumor invasion of bone marrow 3. Altered nucleoprotein synthesis ? 4. Effect of therapy (a) X-ray (b) Radioactive isotopes (c) Chemotherapy

reliable and simple method for measuring accurately alterations in the rate of blood production. Such a method has been recently employed in this laboratory: The “rate of replacement of erythrocyte cholinesterase” is utilized to measure the rate of erythrocyte production.⁸ Suffice it to say that with regard to the several agents (Table 1) which have so far been indicted, only following the use of certain therapeutic agents is there good evidence of the causative mechanism. The repeated administration of such agents as radioactive isotopes, nitrogen mustard derivatives and the newer chemotherapeutic compounds may have, as one side effect, the selective destruction of the blood-forming organs.

That *accelerated erythrocyte removal* may play a fundamental role in the anemia which occurs in malignant disease appears to be well documented. Berlin² demonstrated that it does in patients with leukemia, using the Ashby technique for measuring the rate of disappearance of transfused erythrocytes.

Chart 3.—Disappearance of transfused blood in patient with chronic lymphocytic leukemia.



By the Ashby as well as by other techniques^{1, 2, 4, 6, 10} this observation has been confirmed both in patients with leukemia and in patients with various types of cancer. Utilizing the extremely simple method of measuring the rate of disappearance of homologously matched erythrocytes (that is, the disappearance of transfused blood) in the absence of loss of blood, the authors have repeatedly observed this mechanism at work in certain of the malignant diseases (Chart 3).

In childhood leukemia, which in most instances is of the "acute" variety, profound anemia is one of the most striking features. In fact, the leukocyte content may be low, normal or high, and may well be unremarkable in terms of absolute numbers, while without exception, on the other hand, severe anemia is characteristically present. Rapid disappearance of transfused erythrocytes is an equally impressive feature of the anemia, particularly in later stages of the disease. The fate of the transfused cells is not entirely explained. A similar phenomenon is frequently observed in the leukemic process in adults. This is particularly true in leukemia of the acute type. This phenomenon is also frequently observed in the late stages of chronic leukemia, particularly in that of the lymphocytic type.

That this anemic process may be described primarily as an acceleration of erythrocyte removal appears to be well founded in the references cited.^{1, 2, 4, 6, 10} However, it is noteworthy that many of the criteria necessary for the recognition of hemolytic anemia may be absent except for the rapid disappearance of transfused blood. The significance

TABLE 2.—Characterization of anemia in malignant disease

Abnormal Finding	Blood Loss	Accelerated Erythrocyte Removal	Retarded Erythrocyte Production
CLINICAL SIGNS:			
Hypotension	+	—	—
Tachycardia	+	—	—
Bleeding	+	—	—
Jaundice	—	±	—
ABNORMAL ERYTHROCYTES:			
Size	+	±	—
Shape	+	±	—
Decreased HB	+	—	—
Nucleated RBC's	+	±	—
Reticulocytes	+	+	—
Spherocytes	—	+	—
EXCRETA:			
Melena	+	—	—
Increased urobilinogen excretion	—	+	—
HEMOLYTIC MECHANISMS:			
Coombs	—	±	—
Agglutinins	—	±	—
Hemolysins	—	±	—
Increased serum bilirubin (indirect)	—	±	—
BONE MARROW:			
Tumor cells	±	±	±
Increased erythropoiesis	+	+	±
SURVIVAL OF TRANSFUSED ERYTHROCYTES			
Decreased	Decreased	Normal	

TABLE 3.—Therapy for anemia of malignant disease

Method	Blood Loss	Accelerated Erythrocyte Removal	Retarded Erythrocyte Production
Treat the malignant process	+	+	+
Transfusions	+	+	+
Control of bleeding site	+	—	—
Iron	±	—	±
Corticotropin or cortisone	—	±	±
Splenectomy	—	?	?
Testosterone	—	—	?

of this phenomenon remains to be determined. Because of the frequency and severity of this phenomenon as a concomitant, it may well prove to be a fundamental aspect of at least certain of the malignant diseases.

Recognition of Type of Anemia

Recognition of the precise nature of the anemia involved and the mechanism at work is a fundamental prerequisite for the effective therapeutic management of the anemia.

No better example can be cited than the case of a 24-year-old white man who was referred with the diagnosis of acute leukemia. The patient had been

ill for a period of six months and had had pronounced pallor and weakness. There had been no loss of weight despite moderate anorexia. Upon physical examination the patient was observed to be well developed, muscular, and well nourished, moderately pale, without jaundice or purpura and without adenopathy or tenderness of bones. The spleen was palpable at the left costal margin in the right lateral position only. The stool was normal in color and the remainder of the examination was negative. Erythrocytes numbered 1,680,000 per cu. mm. and the hemoglobin content was 6.6 gm. per 100 ml. The volume of packed red cells was 24.5 per cent and reticulocytes made up 7.3 per cent of the total. Morphologically there was a significant degree of anisocytosis, poikilocytosis, hypochromia, macrocytosis, microcytosis and polychromasia, suggestive of iron deficiency anemia with accelerated erythrocyte production. Leukocytes numbered 2,800 per cu. mm.—83 per cent polymorphonuclear cells and 17 per cent lymphocytes. Platelets examined on a smear of blood were normal. The urine was negative for significant increase in urobilinogen, and the stool was only positive for occult blood on one of eleven examinations. Conditions observed upon bone marrow examination were compatible with active erythropoiesis, and there was no basis for a diagnosis of leukemia. With the evidence suggesting anemia due to loss of blood the gastrointestinal tract was carefully studied. A tumor in the stomach bearing an ulcerated lesion within its center was roentgenographically observed (Figure 1). Proof that the anemia was owing to bleeding from the gastric lesion was provided by the response to gastrectomy and removal of a benign leiomyoma. Thus a patient with "acute leukemia" was cured.

In *anemia due to loss of blood* (Table 2) of relatively sudden onset, tachycardia, decreased pulse pressure, and even cardiac dilation may be present. There may be evidence of loss in the sputum, vomitus, stool or urine or other portals of exit. The absence of jaundice is a significant finding. Morphological alteration of the erythrocytes may give evidence that they are being produced at an accelerated rate, particularly if loss of blood persists into a chronic state of iron deficiency; reticulocytosis may be absent in these circumstances. Positive reactions to tests for hemolytic mechanisms (Coombs', agglutinins, hemolysins) are conspicuously absent, the bone marrow is usually hyperplastic primarily in the erythrocytic series, and transfused blood may rapidly disappear as a consequence of the continued loss of blood. *Accelerated erythrocyte removal*, if accompanied by a hemolytic process, is characterized by persistent absence of evidence of loss of blood. In many instances jaundice is present, as are some or all of the morphological criteria of accelerated erythrocyte regeneration. Frequently the presence of spherocytes

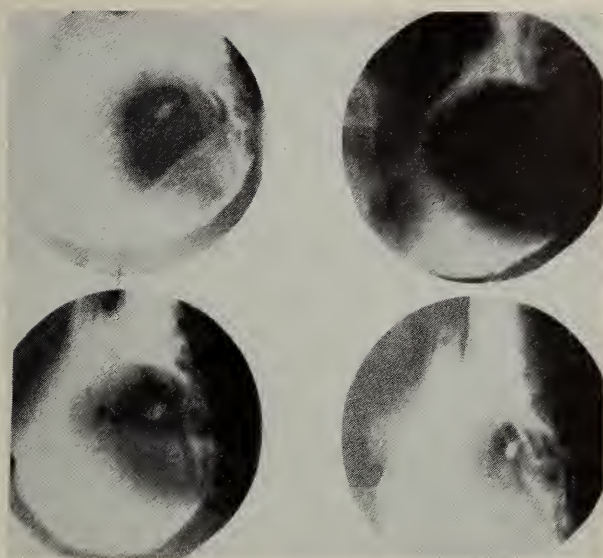


Figure 1.—Ulcer within a benign gastric leiomyoma as a source of bleeding that caused "acute leukemia."

is of diagnostic significance. There may be, in addition, an increased excretion of porphyrin-derived pigments in the urine and stool (urine and fecal urobilinogen). Results of tests for hemolytic mechanisms may be positive and in many instances the indirect fraction of bilirubin in the Van den Bergh reaction is elevated. A significant degree of erythroid hyperplasia is seen upon examination of bone marrow, and transfused erythrocytes rapidly disappear from the circulation.

Retarded production of erythrocytes (Table 2) is characterized by the absence of many, and indeed most, of the concomitants of loss of blood and of accelerated erythrocyte removal. There are few cardiovascular adjustments that can be clinically detected, there is no evidence of loss of blood except that which is due secondarily to a profound reduction in platelets, and there is little or no jaundice. Erythrocytes are not greatly altered morphologically in most instances. The excreta do not contain blood or excessive amounts of pigment.

Results of tests for the presence of hemolytic factors are usually negative, the bone marrow is normal or hypoplastic, and transfused erythrocytes usually survive the normal period, unless the production of hemolytic antibodies has been previously incited by the use of transfusions. It is thus by a process of exclusion that retarded erythrocyte production is revealed.

THERAPY

Foremost in any program for the treatment of anemia associated with malignant disease is the treatment of the malignant process itself (Table 3). This is particularly true of the leukemic process in

which the successful use of the agents employed (x-ray, chemotherapy, radioactive isotopes) is followed by a return of normal hemoglobin content.

In anemia owing to blood loss accompanying a malignant process, that the bleeding site requires control is self-evident. Thereafter, restoration of normal oxygen-carrying capacity of blood is most rapidly accomplished by transfusions of whole blood or of erythrocytes. In many instances the administration of iron may reduce the number of transfusions necessary.

In anemia owing to accelerated erythrocyte removal, transfusions may be frequently required. When an immunologic mechanism can be demonstrated, corticotropin (ACTH) or cortisone is helpful, sometimes dramatically interrupting the accelerated rate of erythrocyte removal. Surgical removal of the spleen sometimes is followed by an impressive degree of improvement for variable periods. The explanation of this latter therapeutic procedure remains highly controversial.

Demonstration of anemia due to retarded erythrocyte production requires the careful evaluation of the effect of the therapeutic agent employed. If properly incriminated, the offending drug must be promptly discontinued and other forms of therapy employed. In certain instances, corticotropin or cortisone may have significant beneficial results. In most instances, whole blood or red cell transfusions may be the mainstay of the therapeutic regimen. Liver extract, iron and vitamins have not been shown

to induce significant beneficial effect except in well defined deficiency states. The supplementary use of liver, folic acid, vitamin B₁₂ and similar agents will be of benefit if there is a specific deficiency of these factors.

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REFERENCES

1. Bateman, J. C.: A study of blood volume and anemia in cancer patients, *Blood*, 6:639-651, July 1951.
2. Berlin, R.: Red blood cell survival studies in normal and leukemic subject, *Acta. Med. Scandinav.*, Supp. 252, 1951.
3. Cartwright, G. E.: *Diagnostic Laboratory Hematology*, Grune and Stratton, 1st Ed., 1954.
4. Hyman, B. A., and Harvey, J. L.: Studies on anemia of disseminated malignant neoplastic disease—I, the hemolytic factor, *Blood*, 9:911-919, Sept. 1954.
5. Kinney, T. D., and Mallory, G. K.: Cardiac failure associated with acute anemia, *New Eng. J. Med.*, 222:215, 1945.
6. Ross, J. F.: The mechanism of anemia in leukemia and malignant lymphoma, *J. Clin. Invest.*, 31:668, 1951.
7. Samuels, A. J., Hecht, H. H., Daines, M. C., and Lewis, C. S.: The oxygen content of sternal bone marrow and its relation to polycythemic states, to anemia and to heart failure, *Am. J. Med.*, 37:108, 1952. Presented at Am. Fed. Clin. Research, Atlantic City, May 1, 1951.
8. Samuels, A. J., Reinhard, L., Jelinek, B., and Furrer, D.: A simple method for measurement of erythropoiesis in man. In press.
9. Shen, S. C., and Hamburger, F.: The anemia of cancer patients and its relation to metastases to the bone marrow, *Lab. and Clin. Med.*, 37:182-198, Feb. 1951.
10. Weinstein, I. M., and LeRoy, G. B.: Radioactive sodium chromate for the study of survival of red blood cells—II, the rate of hemolysis in certain hematologic disorders, *Lab. and Clin. Med.*, 42:368-376, Sept. 1953.
11. Wintrobe, M. M.: The cardiovascular system in anemia, *Blood*, 1:121, 1946.



The Shoulder Joint

Observations on Comparative Anatomy, Physiology and Treatment

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THERE IS A GREAT DIVERSITY of opinion as regards the diagnosis and treatment of certain common affections of the shoulder joint. It is believed that this stems from a lack of agreement on certain basic anatomic and physiologic principles that govern function of the joint. Certain concepts that vary considerably from generally accepted opinions have been described previously by the author.^{6, 8} However, these concepts now have been greatly modified by two distinct factors—first, more than ten years of added clinical experience; and, second, certain studies in comparative anatomy which appear here for the first time. This modified viewpoint will indicate that many common affections of the shoulder joint are either primarily caused or secondarily aggravated by the basic structural weaknesses of incomplete evolutionary adaptation.

At the outset it should be recognized that the primate shoulder joint and consequently the human shoulder as a family member not only differs radically from other joint structures of the body, but is as well completely unique in the entire animal kingdom. In a recently published text⁷ certain factors in the evolutionary progression of shoulder joints were traced from pelvic fins of the fish to primate shoulder joints.

For the purpose of this article it will suffice to state that as regards the simian-anthropoid division of the primates, the creeping, grasping quadruped locomotion in their immediate pre-simian forebears is supplanted by a swinging movement using the forelimbs only (brachiation).

Varied shifts in the habitual lines of force prior to the development of the human shoulder were described, leading to the conclusion that although there are certain minor differences in human and simian shoulders, studies in comparative anatomy confirm the many observations of others that they must have had the same origin—namely, arboreal. However, these same differences supply certain clues as to the undeniable superiority of simian-anthropoid performance. It is quite possible that the functional stimulus toward evolutionary improvement of the human shoulder joint was diminished when man

• In a visual study of human and simian function of the shoulder joint, manifest superiority of the latter was noted. Comparative anatomical studies tend to confirm these observations and indicate that many common affections of the shoulder in humans may stem from incomplete evolutionary adaptation.

Certain anatomical clues may lead to improvements in conservative and surgical treatment.

A regimen of conservative and operative treatment developed over a period of many years has been found to be clinically effective for the relief of chronic refractory shoulder pain. These techniques differ at many points from present practices of a majority of physicians who deal with diseases of the shoulder.

left the trees somewhat less than a million years ago. During the same period the simian progressively improved forelimb function owing to continued residence in the branches. At the pivotal point the simian-anthropoid joint achieves unique bipolarity in that the lines of force are now away from the body in the hanging position but toward the body when quadruped stance is assumed. Although the human no longer lives in the trees he still has a bipolar shoulder, as indicated by complete reversal of force lines when shifting from pushing to pulling.

Students of the physiology of movement have no difficulty in explaining a loss of abduction when the deltoid muscle itself is paralyzed. However, there has been a great diversity of opinion in explanations of mechanisms whereby an intact deltoid could be weakened or even completely paralyzed from failures of neighboring synergic muscles in two distinctly different systems.

In that regard a case in which the head of the humerus is shattered and dislocated may be considered. Surgical experience has taught that if the head is removed for this or other reasons without supplementary measures, in almost 50 per cent of cases there will be a flail or paralyzed shoulder, and in all cases movement will be severely weakened and limited. If, however, the capsule is reattached to the shaft of the humerus a stable shoulder is the invariable result, and in many cases there will be a practically complete return of function.⁸

Upon anatomical investigation it was observed

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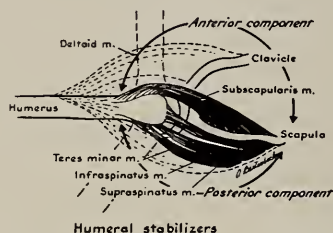
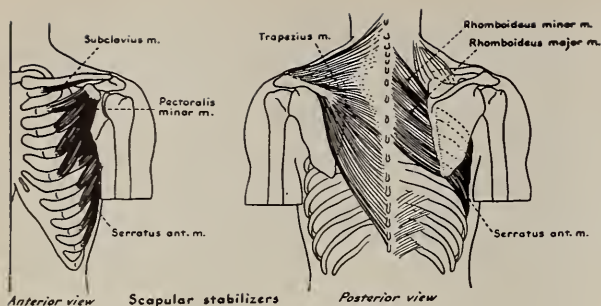


Figure 1.—The dual mechanism of scapulohumeral stabilization. (Taken from Jones, Laurence: The shoulder joint, Surg., Gyn., and Obst., Oct. 1942.)

that this functional benefit was not due to capsular fixation, but to the fact that the capsule in the shoulder joint is actually a conjoined tendon containing the insertions of extremely powerful capsular muscles. The nature and power of these processes will be described in detail later. This operation has been modified considerably since it was first done almost thirty years ago. The modern technique uses fascia lata sutures not only for firm fixation but to act as homotransplants when it is found that capsular flaps must be lengthened. This multipurpose plastic repair is described and illustrated in considerable detail in standard orthopedic texts.^{1, 9}

It is important to note that this operation, as well as all other exploratory and reparative procedures are performed through a right-angled transacromioclavicular incision (Cubbins) in which the deltoid muscle is separated from its point of origin. It is necessary to emphasize this point, for in another standard surgical text this operation is erroneously described as being performed through an anterior vertical deltoid incision.⁹ The importance of these points will be discussed briefly later.

Another much more unusual cause of deltoid paralysis by association was encountered in a second study of an abnormal physiologic process. During a radical breast amputation done elsewhere, in the course of axillary dissection the nerve to the serratus anterior had been inadvertently severed. With the resultant loss of scapular fixation there was apparently a complete paralysis of deltoid abduction. That this was more apparent than real was indicated

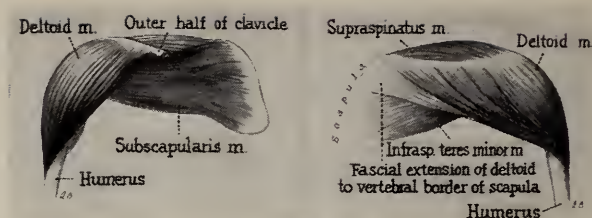


Figure 2.—The deltoid (rhesus). *Left*: The deltoid origin and insertion, anterior view, exactly similar to corresponding pattern in humans. *Right*: Posterior view, illustrating the pronounced difference from human configuration, which originates only from the outer half of the scapular spine.

by the following test. When the examiner fixed the scapular borders manually, the patient was able to abduct the entire upper extremity with good power. The foregoing and added clinical experiences have led to the formation of the following concepts that have met with considerable acceptance.

The term "shoulder girdle" is in fact a complete misnomer in that the scapulae are not linked to each other as they are in birds. They are, in fact, entirely without direct bony attachment to the costal cage except for a freely movable sternoclavicular joint. Therefore, the sole attachments to the costal cage are muscular. The acromion process of the scapula is linked to the clavicle by a synostosis in which there is normally complete fixation. Although usually described as a "ball and socket" joint, the rounded humeral head is actually attached to a very flat glenoid fossa of the scapula, all in the interest of a wide range of motion. Since the muscular attachments of the scapula and clavicle are entirely separate from those muscles which bind the humerus to the glenoid, two entirely different groups must act in a complete complex synergism if the varied component parts are to be stabilized while others are moved at one and the same time. The muscles that connect the scapula and the clavicle to the costal cage to effect scapular stabilization by counteraction are as illustrated (Figure 1, upper tier). In the same drawing are shown the two layers of muscles that directly connect the humeral head to this relatively flat glenoid—the deltoid for the outer layer, the massed "short rotators" or, using a better term, the capsular muscles for the inner layer (Figure 1, lower tier). That they are rough mirror images of each other is not an anatomical coincidence and the fact once led Codman⁴ to describe the capsular group as an "inner deltoid."

Once the author became convinced by visual observation that the simian shoulder had certain manifest superiorities, a comparative study on the rhesus shoulder joint was made. This was based on the same criteria as had governed human dissection. The deltoid dissection of a rhesus shoulder

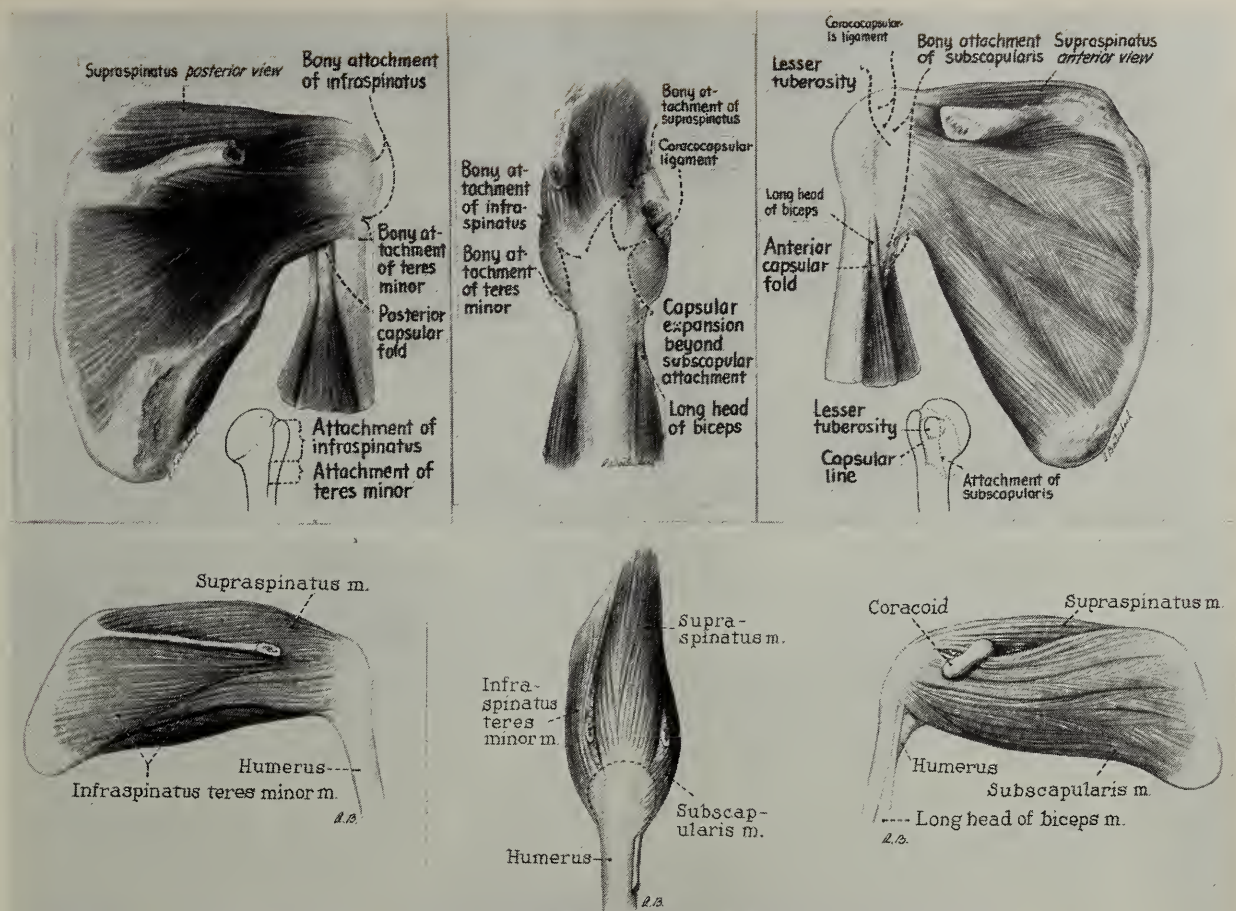


Figure 3.—Comparative anatomy of capsular ("short rotator") muscles—human (upper tier) and rhesus (lower tier). For complete exposure all overlying structures have been removed—deltoid and acromioclavicular arch.

Left: Posterior views. In both, the supraspinatus and the fused infraspinatus (teres minor) originate from almost the entire posterior aspect of the scapula, separated only in their outer portions by the base of the scapular spine. The continuous common line of insertion is depicted more clearly in the center pictures in the upper and lower tiers.

Center: Lateral views. In both, the combined infraspinatus-teres minor inserts into the posterior vertical limb of the greater tuberosity, the supraspinatus into the horizontal limb, and the subscapularis into both the lesser tuberosity and the anterior vertical limb by fascial prolongation. Throughout the entire subscapularis insertion runs a tunnel containing the tendon of the long head of the biceps. The combined configuration resembles a horseshoe.

Right: Anterior views. The subscapularis arises from almost the entire anterior surface of the scapula (the subscapular fossa). The fan-like fibers converge into a powerful tendon of broad insertion into the lesser tuberosity and, by extension, into the anterior margin of the greater tuberosity. The intimate relation of the tendon of the long head of the biceps to the subscapularis tendon is again clearly depicted in this view.

Note that in all views the simian muscles are comparatively longer and heavier.

joint is pictured in Figure 2. Since in the anterior view the human and rhesus have an exactly similar distribution, the human illustration was omitted. It should be remembered also that in humans the posterior view of shoulder joint is exactly symmetrical with the anterior view, as it originates from the outer half of the scapular spine. In the simian, the posterior view reveals great differences. Instead of being limited to the outer half of the scapular spine as in the human, the muscle not only runs the full length of this structure but extends to the upper third of the vertebral border of the scapula by means of a distinct fascial prolongation. Of course, one notes that the vertical axis of the scapula is con-

siderably flattened as compared to the human, a condition found in all scapulae used for partial or complete quadruped locomotion.

The drawing (Figure 2) depicts the results of dissection of the human-rhesus capsular ("short rotator") muscles. None of the standard texts on human anatomy give adequate consideration to this extremely important group. They are considered as minor accessory muscles whose function is to rotate or "depress" the humeral head. For purposes of comparative study of the human and the rhesus muscles, matching pictures are shown in Figure 3. In both specimens the deltoid and acromioclavicular arch was removed for the purpose of complete exposure.

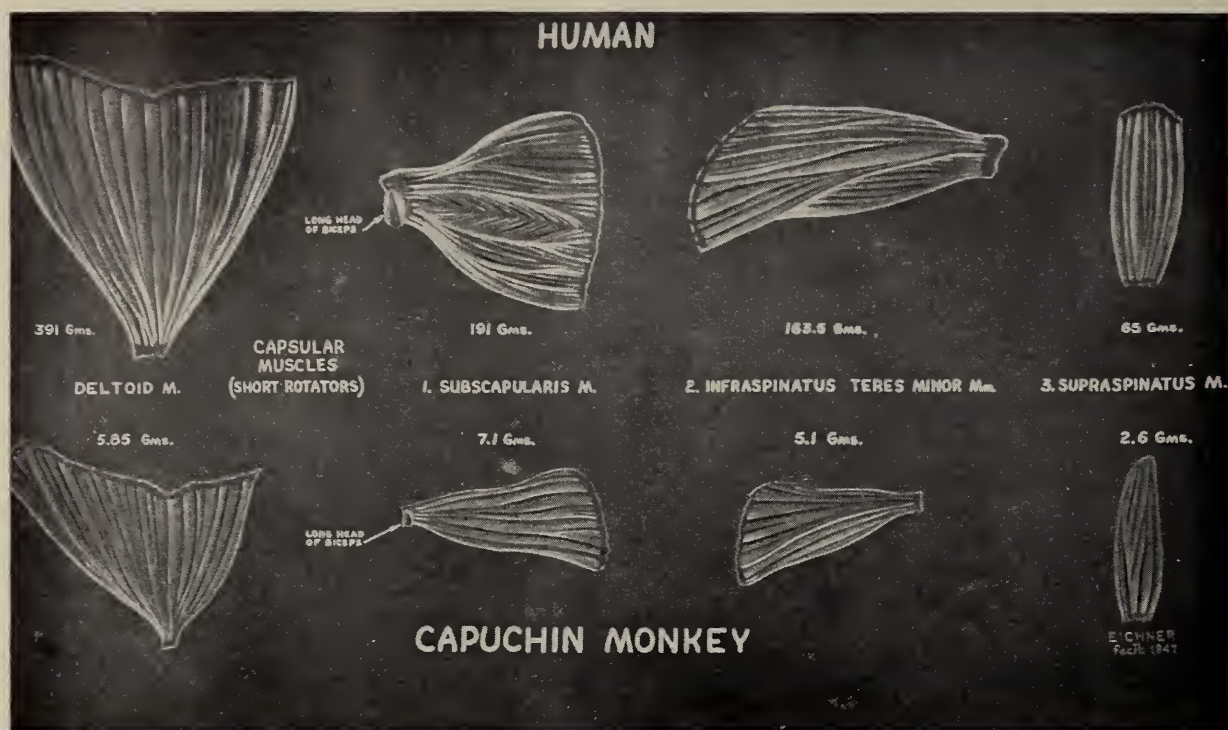


Figure 4.—The comparative weights (human and simian) of the excised capsular muscles. In the upper tier are the human, in the lower tier the capuchin (rhesus) monkey. Particular attention is called to the posterior prolongation of the deltoid muscle and the variation in comparative weights—the deltoid in the monkey being comparatively lighter than in the human, the capsular muscles longer and heavier.

The comparative origins and insertions, and their respective differences can best be studied by an inspection of the actual drawings and the captions. In connection with this study it should be particularly noted in the lateral view the anterior and posterior components pull not only on their individual bony insertions but against each other through the medium of the central capsular link, the fused supraspinatus-capsular tendon. The location of the long head of the biceps and the differentiation of the component parts of the "horseshoe" have considerable surgical anatomical signification on the operating table, as here only the lower tendinous insertions of the capsular muscles are visible, the remainder being concealed from view by the intact bony acromioclavicular arch and the cervical muscles.

The monkey's capsular muscles compared to the human's are almost exactly similar in distribution but are relatively longer and heavier (Figure 4). This is particularly evident as regards the central supraspinatus factors and this difference was confirmed later by actual weight determinations. Likewise when the tendons of the long heads of the biceps of humans and simians are compared this improvement in central structural strength is emphasized (Figure 5). Bearing in mind the comparative body weights of the subjects (human, male, 190

pounds; rhesus, male, $4\frac{3}{4}$ pounds) the human bicipital tendons seem to be structurally inadequate, as if a cord were placed beside a cable.

In the course of this same attempt to demonstrate that the "short rotator" muscles were not insignificant accessory muscles of a secondary or inferior class, in the human specimen previously illustrated the deltoid and the individual capsular muscles were removed from origin to insertion and weighed with the following results: When the weights of the individual capsular muscles were added there was a surprising total of 418 gm., or slightly more than that of the deltoid, generally recognized as one of the largest and most powerful of muscles. But since in the human the difference is not great let us for the moment consider them as approximately equal, viz., a ratio of 1:1. Of particular interest is the fact that the central link, the supraspinatus, connecting the posterior and anterior capsular muscles—the one subject to the greatest stress—is much the smallest of the group, weighing only 65 gm. or 8 per cent of the total deltoid-capsular weight. When the deltoid and capsular muscle of the capuchin (rhesus) monkey were similarly removed and weighed the very different results are demonstrated. The total capsular weight was 14.8 gm. compared with a deltoid weight of 5.85 gm.—a deltoid-capsular ratio of 1:2.5. To complete the comparison, the supra-

spinatus was relatively much heavier, increasing to 12 per cent of the total weight, making it a much stronger central link. These varied shifts may explain in large measure the manifest superiority of simian performance.

The very different movements in this unique joint—the dual processes of human scapulohumeral synchronization—merit a detailed analysis as a basis for varied treatments (Figure 6).

The following determinations are based on radiographic measurements made in the standing position in front of a vertical (plumb line) copper wire. Pure abductive synergism is insured by measuring movement made only in the midaxillary plane, eliminating entirely the muscles which effect coronal movement—the pectoralis major (for forward motion), the latissimus dorsi and the teres major (for posterior movement). With the arm at the side the average vertebral border of the scapula varies slightly from a position completely parallel to the midline of the spinous processes to one best described as an acute 10° angle above downward. When the arm is abducted there is a minimal scapular (“setting”)⁵ movement until approximately the 45° angle is reached. From this neutral zone of maximum scapulohumeral relaxation the ratio is relatively constant. At the 90° humeral angle—a 45° increase from the neutral point—there is only a 15° shift of the vertebral border which now measures approximately 25° from the wire. When the entire upper extremity elevates completely overhead to a point just short of the 180° angle (170° to 175°) the vertebral border reaches a 45° to 50° angle. Although the range of scapular movement is always less, the ratio is constant and progressive for all intermediate points.

These findings differ considerably from those published in an article by Inman, Saunders and Abbott⁵ who stated (1) that there is considerable individual variation; (2) that scapular movement starts at the 30° abductive angle; (3) that thereafter the scapulohumeral ratio is approximately 2 to 1. The exact method of measurement they used was not described.

In figure 7 is depicted the normal cross-sectional relationship of the head of the humerus, the inner capsular muscles, the subacromial (subdeltoid) bursa, and the outer deltoid.⁶ Following an initial rent, with dependency and pulls of conflicting muscles, there is a failure to heal. Finally there occurs bursal inflammation, inadequate scar tissue, secondary deposition of calcium, and finally a cartilage loss. In fact, in the author's opinion deposition of calcium is usually a positive confirmation of the existence of a preexistent underlying tear.

It might be well at this point to again call atten-

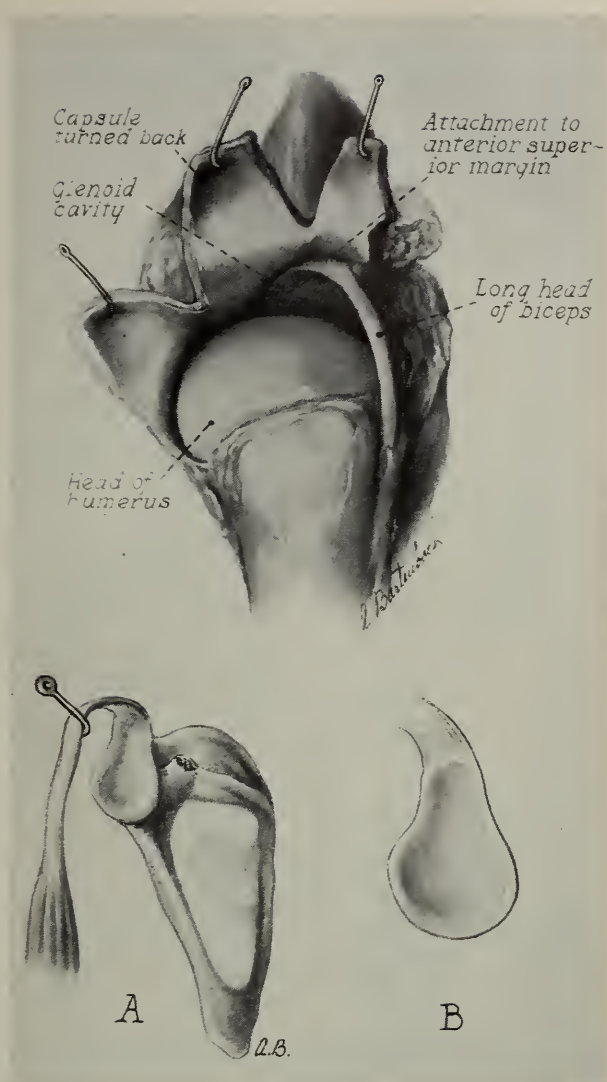


Figure 5.—The tendon of the long head of the biceps. (A): The relatively thin weak human tendon. (B): The comparatively much heavier simian tendon. In the enlarged view, the simian tendon arising symmetrically from the entire upper surface of the glenoid.

tion to some very significant postmortem findings that have been largely neglected. In two different sets of statistics (Codman and Akerson,³ 1931, and Wilson and Duff,¹⁰ 1943), there is such substantial agreement that they can be combined for analytical purposes. In 225 autopsies performed on individuals dying of other causes after the age of 30 years demonstrable lesions or tears were found in 35 per cent of the entire number, and in one-half of these the lesion was large. With the larger tears there was a loss of hyaline cartilage (arthritis), in all there was inflammation of the subdeltoid bursa (bursitis). In many of the cases with large scale rents there was a concomitant rupture of the long head of the biceps. Independent bicipital rupture without large scale tear was not found in any instance. In short, the investigators concluded that the primary lesion

TABLE OF RELATIVE MOVEMENT
FOR SYNCHRONIZED SCAPULO-HUMERAL POSITIONS

X-RAY POSITION	HUMERAL ANGLE	SCAPULAR ANGLE (VERTEBRAL BORDER)
1	10°	10°
2	45°	10°
3	90°	25°
4	175°	50°

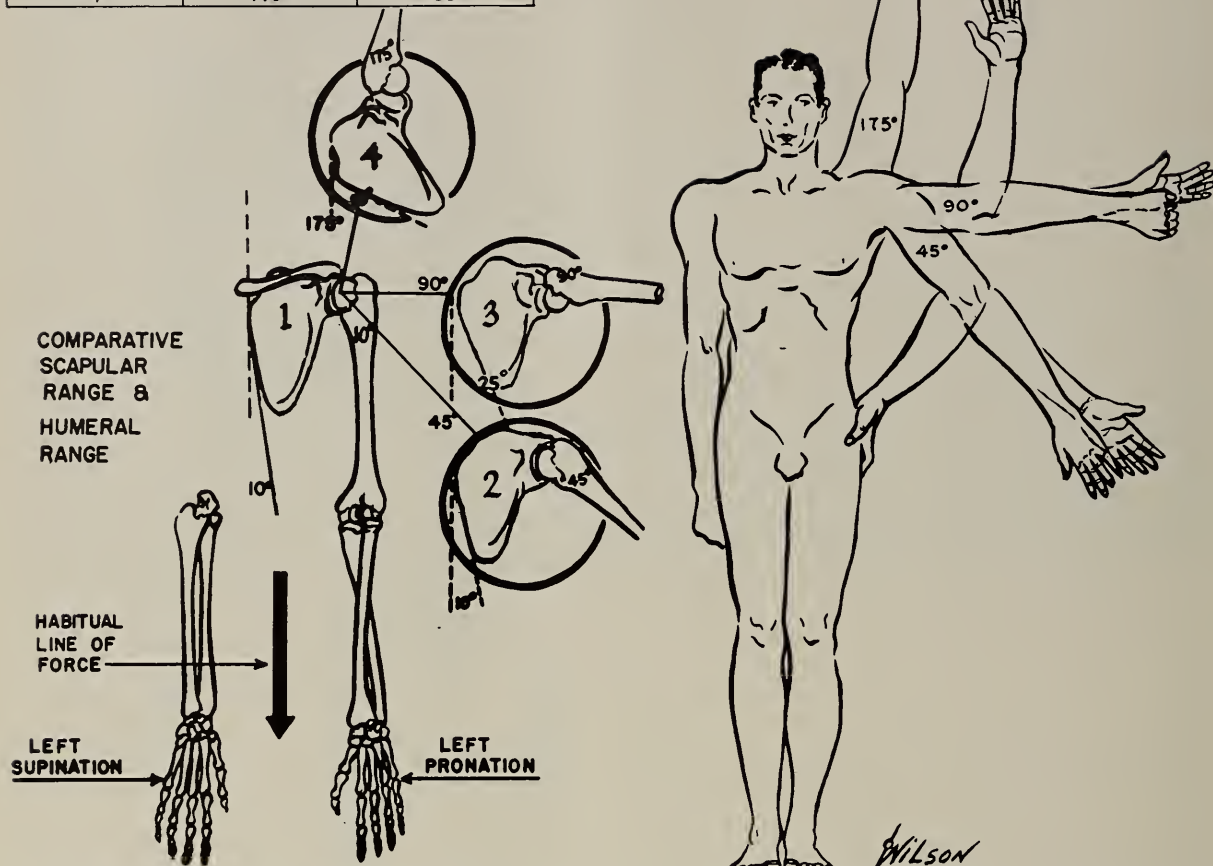


Figure 6.—The physiology of synchronized scapulohumeral movement. Lateral abduction in the mid-axillary plane. Radiographic measurements—standing—before a vertical wire. In the initial humeral dependent vertical position the vertebral border of the scapula is zero to 10 degrees. Humeral movement to the 45° angle occasions minimal scapular movement—the position of maximal scapulohumeral relaxation. From this neutral zone the dual mechanism of scapulohumeral movement begins. Initial figures are subtracted from succeeding scapulohumeral positions, the humerus moving 3° to each degree of change in scapular vertebral border angulation, viz., the ratio of three to one.

is a capsular tear and the secondary lesions are actually only complicating sequelae.

All the foregoing observations are of importance only as they pertain to practical improvements in treatment. The great confusion here is indicated by a study of the usual methods: Courses of x-ray therapy, administration of the cortisone derivatives generally, or hydrocortone locally, joint aspirations and lavage, to list only a few. There is a rather general belief that early active exercises are indicated to "stretch" bursal adhesions.

The treatment of the painful shoulder by immobilization, rather than exercise, generally has been neglected but it actually had many distinguished advocates in the past. Many years ago Sir Robert Jones of Liverpool in a personal conversation with the author voiced the opinion that in most cases painful shoulders will get well "if you will

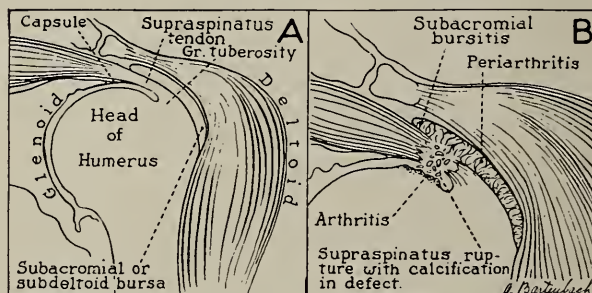


Figure 7.—Cross-sectional studies of the shoulder joint (diagrammatic). (A): The normal interrelation between the head of the humerus, supraspinatus muscle and tendon, capsule, subacromial bursa and deltoid muscle. Note that the tendon and capsule fuse to form a conjoint tendon (musculotendinous cuff). (B): The varied conditions illustrated are frequently not clinical entities but complicating sequelae developing from primary rupture of the tendon and capsule. (Taken from: Jones, Laurence: Complete rupture of the supraspinatus tendon (Figure 2), Arch. of Surg., Dec. 1944.)

only keep them quiet." The words of this greatest of orthopedists made an indelible impression on a young intern. The exponents of violent early movement have misinterpreted grossly the ideas of Codman,² as evidenced by the following collection of direct quotations from his works: "From the very nature of the lesion manipulations and forced exercises can do no good, and might do some harm—there are two rational plans (1) fixation in abduction to relax the tendon, improve blood supply and approximate the torn ends, (2) gentle "stooping exercises" to help nature smooth off the irregular surface of the lesions—even in old cases one can see when the bursa is opened on the operating table, that there is a tendency toward approximation of the torn ends of the tendon as the arm is abducted—it is clear that until a patient can swing his arms freely in the stooping position he is not ready to use the arms when standing."

These statements of Codman were made in spite of the fact that he strongly advocated surgical operation in practically all cases. Codman's attitude on that subject is in direct conflict with the experiences of the author, who has observed that surgical treatment can be reserved for the rather small proportion of patients who do not respond to the conservative measures outlined. In a review of the records of patients treated by the author, it was found that open operations were performed in only 6 of 87 cases.

In line with the foregoing, Figure 8 depicts a tear in the capsule and the factors which tend to keep it open. A simple familiar analogy is an incised wound over the dorsal interphalangeal surface of a finger in which healing is repeatedly delayed by separation of skin edges by flexion. When a finger splint is applied in extension the lesion heals promptly and without excessive scar tissue. It was pointed out previously (Figure 6) that the 45° angle is the site at which synchronized scapulohumeral movement begins—the neutral zone—and, therefore, at this point maximal scapulohumeral muscle relaxation is obtained. To maintain this position a specially designed abduction splint is applied—to act like the finger splint—to approximate the torn edges (Figures 8, 2a). There is reason to believe that bony fixation of torn edges even in slightly separated position abolishes pain and largely restores function.

As a conservative measure the splint is used to relieve promptly the intense pain that follows minor or major tears. This measure gives substantial benefit in by far the greater number of cases in from two to six weeks. The splint must be worn continuously and the recommendation that it be removed at night is not valid. Recurrent injury is more likely to occur during sleeping movements than when the patient is conscious. For this same reason it is

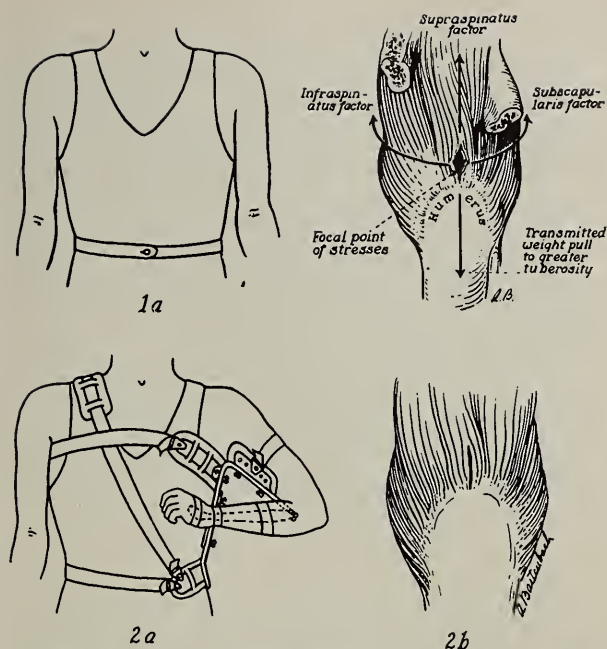


Figure 8.—The contrasting effect of dependence and abduction on capsular tears. (1a and 1b): Illustrating the effect of dependency and the four conflicting force factors which tend to keep the rent open, thereby delaying or completely blocking healing. (2a and 2b): The effect of the 45° abductive angle, "the neutral zone"—relaxes conflicting muscle pulls, closes the rent and promotes healing.

Note: The abduction splint (2a) has been repeatedly modified and as now constructed is, in the author's opinion, vastly superior to other types: (1) weighs only 2½ pounds; (2) the upper chest band flares upward to eliminate pressure on the female breast; (3) the pelvic band has a "key-strap" attached anteriorly and posteriorly to insure close axillary fit; (4) the upper arm band is cupped, and (5) the forearm is supported by a "cock-up" splint. All can be bent for snug fit. "Rights" cannot be used for "lefts" but three sizes of each accommodate most patients. After each using, the straps and felt pads are replaced.

routine for the author, to insist that the splint be worn at night for a two-week period after the disappearance of localized tender points and rotatory muscle spasms. To increase comfort the patient may sleep in a semi-sitting position with the splint resting on another pillow. In the early phases sedation for pain and sleep are necessary adjuvants. The early use of exercises, as frequently recommended, is strongly contraindicated as the weakened capsule can tear like an old sheet. Early physical therapy (inductothermy with light massage) is indicated, but no active movement whatsoever until direct pain on pressure (Dawbarn's sign) and spasm on internal or external rotation have largely disappeared. At that time, and then only, carefully graded active and passive movements are recommended for the release of the adhesions which always form in the deltoid bursa.

Finally, the abduction splint has come to be an invaluable adjunct in the treatment of other conditions such as fractures of the clavicle or of the

upper end of the humerus, with or without displacement. The clavicular break in continuity immediately causes the outer component of the shoulder girdle to drop, frequently causing considerable displacement. This anatomical realignment is secured by elevation of the outer component parts through the medium of the splint. In the event of overriding in either the clavicular and humeral fractures, skeletal traction can be added through the insertion of a short olecranon pin attached to a spring traction bracket.

It is important to the patients and to the physician, particularly in the case of elderly patients, to have an ambulant medium of treatment. An added feature aiding early functional recovery is that physical therapy and massage can be started very soon after immobilization for varied injuries.

EVALUATION

In evaluating varied forms of treatment one must not lose sight of the fact that as regards capsular tears and common sundry complications, there is a distinct tendency to spontaneous recovery. In the series of cases that led to these observations this was not a considerable factor. The great majority of patients were not seen until after they had received ineffectual treatment of many different kinds.

The comparative studies are of interest particularly as they suggest means for improving or modifying present techniques. Certainly the long head of the biceps in the human is an exceedingly frail reed on which to hang a dislocated shoulder, as has been noted previously by other investigators.

Conversely, the capsular muscles are an extremely powerful group that should be used more extensively for varied purposes of plastic repair. As has been mentioned elsewhere, if it can regularly stabilize a "headless" humerus it should prove effective in preventing dislocation when the head is still present. This, too, has been effectively established by clinical experience.

The broadening of the deltoid insertion posteriorly by fascial transplant, as found in the simian shoulder, might considerably overcome deltoid weakness such as might occur following poliomyelitis. At the same time capsular weakness, a frequent lesion, would be relieved by concomitant capsular transplants. A study of relative deltoid weights and their relation to a broadened origin gives a sound reason for this suggested surgical modification.

The relief of extremely common protracted and intractable shoulder pain can be effected satisfactorily by the following means. Conservative measures are the treatment of choice, but this should consist

of immobilization at the 45° abductive angle in a lightweight splint of improved, comfortable design. If after eight weeks this has not given substantial benefit, operative repairs described elsewhere are quite regularly effective.

A related subject is the inadequate anterior, central or even posterior deltoid splitting incisions used by a great many surgeons for purpose of either exploration or repair. The axillary or circumflex nerve comes in from behind and major or terminal branches can be seriously damaged by central incision and by the even more hazardous posterior incision. Although anterior incision is quite safe, retracting the heavy deltoid is so difficult that adequate exposure of the central or posterior compartments cannot be obtained. The general use of these incisions may account for the very considerable diagnostic confusion.

The transacromioclavicular incision (Cubbins) in which the deltoid is reflected from its point of origin (leaving a fringe for resuture) should be used regularly for any procedure about the shoulder, whether exploratory or reparative. This incision is in areas completely without hazard, well above all important neuromuscular branches. Finally, mention has been made previously that plastic reparative procedures are described in a popular standard text (Steindler¹⁰) as being performed through an anterior deltoid incision. In the opinion of the author this is well nigh impossible of performance, but if it can be done the anterior incision alone would seriously limit exposure and greatly increase operative difficulties.

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REFERENCES

1. Campbell: Operative Orthopedics, Vol. 1, pp. 469-473, and Vol. II, pp. 1247-1249, Mosby 1949.
2. Codman, E. A.: The Shoulder, pp. 253, 254, Boston, Mass., 1934.
3. Codman, E. A., and Akerson, I. B.: The pathology associated with rupture of the supraspinatus tendon, *Ann. Surg.*, 93:348, Jan. 1931.
4. Codman, E. A.: Personal communication.
5. Inman, V. T., Saunders, J. B., Saunders, deC M., Abbott, L. C.: Observations on the function of the shoulder joint, *J. Bone and Joint Surg.*, 26:1-30, Jan. 1944.
6. Jones, L.: Complete rupture of the supraspinatus tendon, *Arch. of Surg.*, 49:390-398, Dec. 1944.
7. Jones, L.: The Postural Complex, pp. 9-12, Thomas, Springfield, Ill., 1955.
8. Jones, L.: The shoulder joint—observations on the anatomy and physiology, *Surg., Gyn., and Obst.*, 75:433-444, Oct. 1942.
9. Steindler, A.: Traumatic Deformities and Disabilities of the Upper Extremity, Thomas, Springfield, Ill., pp. 87-88, 1946.
10. Wilson, C. L., and Duff, G. L.: Pathologic study of degeneration and rupture of the supraspinatus tendon, *Arch. Surg.*, 47:135, Aug. 1943.

Cortisone in Coccidioidomycosis

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IN ERYTHEMA MULTIFORME and erythema nodosum, corticosteroids, particularly cortisone, given in low dosage for a few days provide dramatic relief and are generally accepted as the most effective drugs.^{1, 13, 17, 22} but almost from their introduction it has been advocated that they be withheld in cases due to an underlying infection. To accept the dictum that coccidioidomycosis must be completely excluded before corticosteroids are given is, in an endemic area and to a lesser extent elsewhere, tantamount to removing these drugs from the armamentarium for the treatment of these conditions. At times it may be almost impossible to make certain by any combination of tests that coccidioidomycosis is not present, since circulating antibodies do not always appear and a positive reaction to a skin test gives no clue as to whether there is a current infection.

The authors were well aware of the known and postulated contraindications to the use of corticosteroids in infectious diseases, but for other reasons which will be discussed later the cautious use of these drugs in occasional cases of severe allergic manifestations associated with primary coccidioid infections seemed warranted. While difference in opinion as to the propriety of even a cautious preliminary trial may exist, such a trial was carried out and the results, it is felt, should be recorded.

MATERIALS AND METHOD OF STUDY

The present series is made up of 19 cases in which cortisone was administered to patients with erythema multiforme and/or nodosum due to primary coccidioidomycosis. The patients were either observed by the authors or their records were made available by other physicians.* The patients were selected for such treatment on the basis of the severity of illnesses. The age range was from 11 to 50 years. Two of the patients were Mexican and one was Negro. There were five males and 14 females.

Diagnostic criteria were those routinely employed in this disease¹⁸—roentgenograms of the chest, coccidioidin skin tests and serologic examinations.

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*The authors are indebted to the following Kern County physicians who made cases available: Bernard R. Ericsson, Albert W. Glockner, Carrol W. Goss, Thomas B. Maxwell, John R. Montgomery, Raymond W. Owens, and Charles E. Stulgenbauer.

• Cortisone administered orally, in low dosages for brief periods, promptly suppressed the allergic manifestations accompanying primary pulmonary coccidioidomycosis in 19 cases. There was no interference with the coccidioidin skin test reaction or with the usual serologic pattern.

Dissemination of the disease as a sequel to the administration of cortisone and/or corticotropin has not been reported. A survey of physicians and of the known instances of disseminated coccidioidomycosis in Kern County failed to reveal any such episode.

In none of the cases in which the authors gave cortisone in the presence of coccidioidomycosis was there any complication or undesirable sequel—specifically, no subsequent dissemination of the disease.

The data presented are not to be interpreted as a therapeutic recommendation, but as a contribution to the information available concerning the effects of these drugs in infectious diseases.

In some cases it was not established that the disease was coccidioid until after administration of the drug had already been started.

Method of Treatment

All patients received cortisone in 25 mg. tablets orally. The total dosages ranged between 350 mg. and 775 mg. administered in a four to six-day period. While no uniform schedule was adopted, a typical one was as follows: 50 mg. initially, repeated in six hours; 25 mg. four times a day for two days, three times a day for one day, and twice a day for the final two days. No restrictions on diet or fluid intake were imposed. Sedatives were permitted. The patients were permitted to be as ambulatory as they desired.

Results

The results were surprisingly uniform. All patients promptly became afebrile, usually within the first day of treatment and always within 48 hours. In the same period malaise, weakness, joint pain, itching and cough diminished or abated completely. The cutaneous lesions and joint swellings, when present, also subsided within a day or two. In no case was there a subsequent increase or recurrence of these symptoms.

There was no appreciable difference in the course of disease as between patients who were first observed within a day of the onset of the erythema

multiforme and/or nodosum and those who were not seen until after lesions had been present a week or more.

Administration of cortisone appeared to cause no interference with the coccidioidin skin test reaction. Strongly positive reactions were the rule, and they occurred in patients who had received cortisone before the test as well as in those to whom the hormone was not given until after the test. The usual serologic pattern that develops in response to an initial pulmonary infection with *C. immitis* was obtained in these cases. Most of the patients in the series showed coccidioidal precipitins, thus bearing out Smith's¹⁹ experience that such antibodies commonly indicate an early stage of infection. In cases in which serial serologic tests could be done, it was noted that precipitins disappeared subsequently. In a few instances complement fixing antibodies were noted in specimens from patients who did not come under observation until several weeks after onset of symptoms. In the cases in which these patients were retested later, these antibodies were no longer present. In other instances the only follow-up possible was by phone call to the patient, the family or the referring physician; in all of those cases information was obtained to the effect that there had been no further illness referable to coccidioidomycosis.

No untoward reactions were encountered.

REPORTS OF CASES

CASE 1. An acutely ill, febrile, 28-year-old Mexican housewife entered Kern General Hospital November 18, 1954, with a diagnosis of pemphigus or erythema multiforme bullosum due to drugs. She had had headache and dizzy spells for a month; and a rash had begun to develop on the right arm, four days previously. The patient had been taking a laxative containing phenolphthalein and acetylsalicylic-phenacetin compound.

The dermatologic symptoms were those of erythema multiforme bullosum. Cortisone was administered by mouth for six days in daily divided dosages, dropping from 200 mg. the first day to 25 mg. on the sixth day.

The patient became afebrile and free of symptoms within 24 hours, except for remnants of rapidly fading skin lesions.

A diagnosis of coccidioidomycosis was established in the meantime on the basis of a strongly positive coccidioidin skin test reaction and coccidioidal precipitins. A roentgenogram of the chest was essentially normal. Subsequent administration of the laxative and the acetylsalicylic compound did not result in any untoward reactions. The patient remained well thereafter.

It was a matter of interest to the staff that at the

time this patient was being treated, there was another patient on the same ward with a similar condition, subsequently proved to be due to medication.

CASE 2. A 43-year-old white woman was admitted to the University of Oklahoma Hospital⁹ on September 13, 1952, with complaint of a "cold," backache, severe headaches, vomiting and chills and fever. The illness had begun a month earlier on a return trip from Bakersfield, California, where the patient had stayed one week. About five days before admittance to hospital, skin lesions had appeared on the right arm and neck.

On admittance the temperature was 106.2° F. and there was a widespread eruption of erythema multiforme and erythema nodosum. Cortisone was given by mouth, 25 mg. four times daily for four days, then twice daily for two days. The patient was afebrile within two days of treatment and the rash faded rapidly.

The diagnosis of coccidioidomycosis, suspected from the start, was confirmed by subsequent report on precipitin and complement fixation tests. Roentgenograms of the chest showed a slight degree of fibrosis of both lung bases on the day of admission and were clear five days later.

CASE 3. A 43-year-old white housewife was first observed April 17, 1954, with complaint of cough of several weeks' duration and fever and rash beginning as blisters on the arms and neck April 13. There was erythema multiforme of the neck and arms, and erythema nodosum of the lower extremities. A skin test with coccidioidin elicited a strongly positive reaction. In a roentgenogram of the chest, infiltrate in the right upper lobe of the lung was noted. Coccidioidal serologic tests showed 3+ precipitins up to dilutions of 1:40. Oral administration of cortisone in doses beginning with 125 mg. the first day and dropping to 25 mg. the fifth day was the only therapy given. There was rapid improvement of the rash, fever and cough. On reexamination of the patient seven months later a roentgenogram of the chest was clear and there were no coccidioidal antibodies in the blood.

CASE 4. A 21-year-old white housewife was first observed July 20, 1953, because of a generalized eruption of a week's duration, associated with malaise, swelling of the hands and feet and with fever. The patient had taken acetylsalicylic acid and a phenolphthalein laxative prior to onset. Epinephrine injections and pyribenzamine had been given for the condition without relief. Past history included a diagnosis of "valley fever" three years earlier, but no information was obtainable.

The temperature was 103° F. There was severe generalized erythema multiforme, most pronounced on the hands and arms. A coccidioidin skin test elicited a positive reaction, and there were 4+ precipitins in dilutions through 1:40 on coccidioidal serologic tests.

Cortisone was prescribed for four days in daily dosage of 150, 100, 100 and 75 mg. Within a few

hours of the beginning treatment the patient became afebrile and free of malaise, and the eruption cleared within two days. There were no indications of a coccidioidal infection from that time on.

CASE 5. A 27-year-old white welder was seen October 2, 1954, with a history of pain in the chest and cough for two weeks, and a skin rash of three days' duration, accompanied by fever and severe malaise. The body weight had decreased about 10 pounds during the preceding week.

The temperature was 101.8° F. Erythema multiforme, most pronounced about the neck, and swelling and pain of the wrists and elbows were noted. At the site of a coccidioidin skin test done a week earlier there was a 1 cm. area of erythema and induration. Serologic examinations for coccidioidal infection showed 4+ precipitins through 1:10 dilution. A roentgenogram of the chest revealed bilateral hilar adenopathy and an infiltrate in the right upper lung field.

Bed rest, acetylsalicylic acid and antihistamines were advised. During the next four days the skin lesions became more pronounced, the temperature more elevated, and weakness and pain in the joint increased. Cortisone by mouth was then prescribed in daily divided dosages of 100 mg. daily for two days and 50 mg. daily for an additional four days. Within 24 hours there was pronounced relief of fever, pain and malaise, the rash was fading.

At the time of reexamination five weeks later, the chest had cleared and the serologic tests for coccidioidal infection were negative. There was no further illness.

CORTICOSTEROIDS IN INFECTIOUS DISEASES

A general discussion of the use of corticosteroids in infections is, of course, beyond the scope of this paper except for mention of a few aspects of the problem.

Over thirty infectious diseases in humans have been treated with corticosteroids.⁷ Results in one disease have not proved to hold true necessarily in others. Deleterious effects have been repeatedly reported in some conditions, particularly tuberculosis. In other diseases considerable benefits have been noted.^{4, 5, 7, 9, 11, 20} Del Pozo and co-workers⁴ reported favorable effects in Hansen's disease far exceeding their expectations, including cases in which antibiotics were not used concomitantly.

It is difficult to draw valid general conclusions from reports of specific instances. Such variables as dosages and even routes of administration affect results. For example, cortisone by mouth was found highly effective in reducing the mortality rate in severe tetanus; injections of the same drug were not.⁹

With regard to fungous infections, there is not a single recorded instance of administration of cor-

tisone's having interfered with the immune mechanisms of systemic mycosis in man, and this despite the well-known high endemicity of some of these diseases—for example, histoplasmosis in an estimated 50 to 75 per cent of residents in the central United States and coccidioidomycosis in a very high proportion of residents of the arid Southwest. As might be expected, there are cases in which patients with primary pulmonary coccidioidomycosis are known to have received corticosteroids more or less inadvertently. In some instances known to the authors, this was because the nature of the cutaneous eruption was not recognized, having been mistaken for contact dermatitis or pemphigus. In others, a correct diagnosis of erythema multiforme was made but the possibility of coccidioidomycosis as a cause was not adequately investigated.

In general, corticosteroids affect unfavorably the course of experimental infections of animals. However, as was stated in a recent survey,¹¹ the results of such studies cannot be applied to humans. Keefer⁷ pointed out that "the dosage of adrenocortical hormones may be a most important fact since excessive amounts of these hormones given to intact animals exposed to infection may have a deleterious effect upon the resistance to the infection . . ." which may not be the case with small doses. In animal experiments, the usual dosages in relation to weight are many times those found adequate to suppress inflammation in the cases in human patients reported herein. There is no evidence that short-term low-dosage administration such as the authors used, has resulted in transformation of a benign infection to one of any gravity.

Reiss and Caroline¹⁵ studied the effect of corticotropin (ACTH) and cortisone upon experimental *Achorion quinckeanum* infection in guinea pigs. They concluded that corticotropin did not change the course of the disease. The cortisone-treated animals showed a "significant prolongation of the first infection" but no change "in the nature or course of the reinfection"; and the trichophytin reaction was not altered by either drug.

Jadassohn and co-workers⁶ noted no significant effect of cortisone upon the course of *A. quinckeanum* infections. Kligman and co-workers⁸ studied the effect of 5 mg. of cortisone daily on experimental *Trichophyton mentagrophytes* infection of guinea pigs. In treated animals the incubation period of the organisms was prolonged and healing was delayed. The trichophytin reaction was not impaired by cortisone and, when elicited two weeks after reinfection, was far more pronounced in the cortisone-treated animals.

Newcomer and co-workers¹² studied the effect of cortisone on coccidioidomycosis in mice, administering dosages from 0.28 mg. daily to 2.24 mg. daily.

They observed: "Using the 25th day of survival as the end point, it may be assumed that cortisone acetate does have a significant accelerating effect in the infectious process when given daily in doses of 0.56 mg. However, this is not true if the 26th, 29th and 30th days are used as the end point. There was no statistically significant effect on the rate of death of mice in all other groups receiving the various dosages of cortisone."

Redaelli¹⁴ noted that the administration of cortisone resulted in more severe infections in rats inoculated subcutaneously with *C. immitis*.

TREATMENT OF PRIMARY COCCIDIOIDAL INFECTIONS

As yet no antifungal agent has proved of value in the treatment of primary coccidioidomycosis. In the absence of such a specific, the objectives in the treatment of primary coccidioidal infections may be divided into three categories. The first in order of importance is prevention of dissemination, and the second is prevention of chronic pulmonary lesions. No treatment exists, as yet, which will aid in accomplishing these objectives.

The third objective is relief of the well-known "valley fever" consisting of erythema multiforme and/or nodosum syndrome, and pneumonitis.

To review briefly, gross allergic manifestations accompany, it has been estimated, 4 per cent of primary coccidioidal infections in white man and 10 to 25 per cent in white women. These manifestations may be one or more of the following: Cutaneous lesions of erythema multiforme and/or nodosum, arthralgia and hydrarthrosis, pitting edema, fever and malaise. These may be mild or so severe as to require prolonged hospitalization. It is obvious that treatment aimed at relief of these manifestations must in no way compromise attainment of the other objectives.

The relationship of inflammation, particularly allergic inflammation, to immunity is still unsettled. Thorne²¹ suggested that the action of corticosteroids "may dissociate the harmful effects of hypersensitivity from the beneficial effects of immunity." As to tuberculosis, in which hypersensitivity has been the subject of intense and continuing study for decades, the consensus is that abolition of hypersensitivity does not impair immunity.¹⁶ In some diseases, such as Hansen's disease, certain allergic reactions are generally considered harmful. In coccidioidomycosis, no valid conclusions can be drawn. To be sure, general statements have often been made to the effect that patients with erythema nodosum are less subject to subsequent disseminated infections.¹⁸ These statements are based on the observation that in several hundred cases of primary coccidioidomycosis with the allergic syn-

drome, none disseminated. While of interest, these observations are not statistically significant in view of the well known rarity of the disseminate disease in general (probably under 0.25 of all cases) and the fact that there have been cases of dissemination following erythema multiforme and/or nodosum.

Dissemination of coccidioidomycosis as a sequel to the administration of cortisone and/or corticotropin has never been reported. A survey of physicians in Kern County, the heart of the endemic area, and a review of known cases of disseminated coccidioidomycosis failed to elicit one instance in which the patient had received corticosteroids before dissemination took place.

Nevertheless, dissemination being such a rare occurrence in any event, it must be emphasized that the benign outcome of the cases herein reported in which cortisone was given does not constitute proof of the safety of steroids in this disease. Indeed it would appear impossible to accumulate sufficient human data to prove safety conclusively. On the other hand, it would be equally fallacious to attempt to apply to humans the results of animal experiments bearing no analogy to the natural human infection either as to route of infection, infecting dosage, normal outcome of such infections, or dosage and route of administration of the drugs. Similar problems exist in the attempted evaluation of reported fungicidal agents.

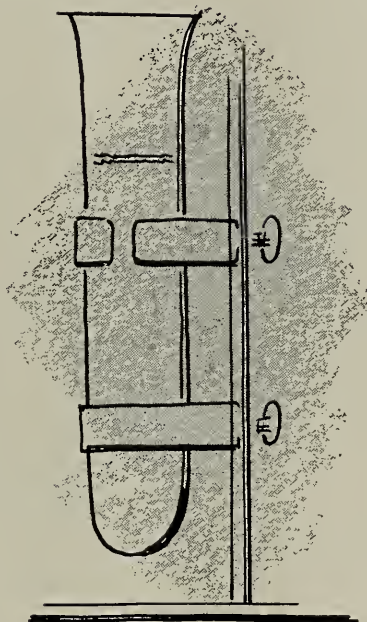
Is there, then, a solution to this dilemma? One path is to attempt to induce, in experimental animals, infections paralleling as closely as possible the natural infections in humans. Endotracheal installation of the vegetative phase of *C. immitis* in very small doses is certainly a step in this direction, and work along these lines has been done.

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REFERENCES

1. Albright, R. W., and Kuggel, M. J.: Erythema nodosum: treatment with cortisone by mouth, *Calif. Med.*, 75:365, Nov. 1952.
2. Beamer, P. R.: Immunology of mycotic infections, *Amer. J. Clin. Path.*, 25:66-75, Jan. 1955.
3. Biddle, M.: Personal communication.
4. Del Pozo, E. C., Ochoa, A. G., Venegas, S. R., Martinez-Baez, M., and Alcaraz, M.: Long term treatment of leprosy with cortisone, *J. Invest. Dermat.*, 24:51-56, Jan. 1955.
5. Doenges, J. P.: Treatment of herpes zoster with cortisone, *Illinois M. J.*, 106:131-133, Aug. 1954.
6. Jadassohn, W., Mach, R. S., and Nardin, J.: Effect de la cortisone sur la mycose experimentale du cobaye, *Acta endocrinol.*, 6:351-355, 1951.
7. Keefer, C. S.: Infections, in Lukens, F. D. W.: *Medical Uses of Cortisone*, Toronto, Blakiston Company, 1954. pps. 401-410.
8. Kligman, A. M., Baldrige, G. D., Rebell, G., and Pillsbury, D. M.: The effect of cortisone on the pathologic responses of guinea pigs infected cutaneously with fungi, viruses, and bacteria, *J. Lab. & Clin. Med.*, 37:615-620, April 1951.

9. Lewis, R. A., Satoskar, R. S., Joag, G. G., Dave, B. T., and Patel, J. C.: Cortisone and hydrocortisone given parenterally and orally in severe tetanus, *J.A.M.A.*, 156:479-484, Oct. 2, 1954.
10. Maxwell, T.: Personal communication.
11. Montgomery, M. M., Benedek, T. G., and Poske, R. M.: Relation of ACTH and cortisone to infection, *Med. Clin. N. Amer.*, 81-94, Jan. 1955.
12. Newcomer, V. D., Wright, E. T., Tarbet, J. E., Winer, L. H., and Sternberg, T. H.: The effects of cortisone on experimental coccidioidomycosis, *J. Invest. Dermat.*, 20:315-327, April 1953.
13. Pillsbury, D. M., and Urbach, R.: Diseases affecting the skin, in Lukens, F. D. W.: *Medical Uses of Cortisone*, Toronto, Blakiston Company, 1954, pps. 357-386.
14. Redaelli, P., Cavallero, C., Borasi, M., Sala, G., and Amira, A.: Infezione sperimentale da *Coccidioides immitis* e steroidi corticosurrenali, *Mycopath. et Myco appl.*, 6:8-14, 1953.
15. Reiss, F., and Caroline, L.: The influence of ACTH and cortisone upon experimental Achorion quincleanum infection and upon anaphylaxis in guinea pigs, *J. Invest. Dermat.*, 19:365-372, Nov. 1952.
16. Rich, A. R.: *The pathogenesis of tuberculosis*, Springfield, Illinois, Charles C. Thomas, 1946, p. 215.
17. Schneierson, S. J.: Orally administered cortisone in erythema nodosum, *J.A.M.A.*, 150:585, Oct. 11, 1952.
18. Smith, C. E.: Diagnosis of pulmonary coccidioidal infections, *Calif. Med.*, 75:385-391, Dec. 1951.
19. Smith, C. E., Beard, R. R., and Saito, M. T.: Pathogenesis of coccidioidomycosis with special reference to pulmonary cavitation, *Ann. Int. Med.*, 29:623-655, Oct. 1948.
20. Solem, J. H.: The effect of corticotropin in the orchitis of mumps: a preliminary report, *Acta med. scandinav.*, 149:341-344 (No. 5) 1954.
21. Thorne, G. W., Forsham, P. H., Hill, R. S., Jr., Roche, M., Staehelin, D., and Wilson, D. L.: Clinical uses of ACTH and cortisone, *New England J. Med.*, 242:783-793, May 18, 1950.
22. Weeks, V. T., and Lehmann, W. X.: Erythema multiforme exudativum treated with cortisone or adrenocorticotrophic hormone: report of four cases, *J. Pediat.*, 44:508-515, May 1954.



Correction of Collapsed Nasal Alae

A Simple Surgical Procedure

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COLLAPSE OF THE ALAE of the nose is an important cause of impaired nasal respiration. Many methods of therapy have been used in an attempt to overcome this fault. The earlier ones employed prosthetic devices; in recent years surgical procedures^{2, 3, 4} that involve actual reconstruction of the nasal cartilages have been used.

It is the purpose of this paper to describe a simple procedure to correct collapse of nasal alae* by the use of a cartilaginous graft. This is not presented as a substitute for a nasal reconstruction. It is suggested as a means of improving function when, for any reason, a more adequate rhinoplastic operation cannot be done.

Since a nasal speculum in the vestibule gives temporary support, alar collapse is frequently overlooked in routine examinations, and a vain search then is made for the cause of nasal obstruction. If collapse of nasal alae is present, it can be seen on inspiration if inspection is done without the use of an instrument. Confirmation is obtained by preventing the collapse of the lateral wall by means of an applicator tip. Patients with alar collapse notice the improvement at once, whereas those with intranasal obstructions note little or no improvement.

Function of the Nasal Alae

A brief resume of the function of the nasal alae will help explain the surgical management of collapse. Excellent detailed descriptions have been written by Proetz⁵ and Fomon.³

The upper and lower lateral cartilages are joined by a fibrous aponeurosis. The upper cartilage is medial to the lower one in the nasal passage and usually overlaps it by three to four millimeters. The flexibility of the aponeurosis and the cartilages permits movement toward the septum and produces a mechanism whereby the resistance to the air stream can be varied with each breath. This area of variable resistance, sometimes called the "pinchcock"

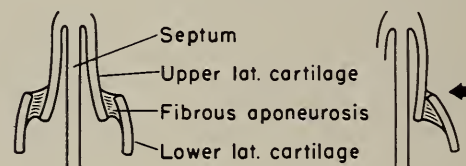
• Collapse of the nasal alae against the septum brings about a serious obstruction to the airway. Collapse may be overlooked on routine examination because the speculum may prevent it.

In most cases alar collapse can be corrected by a simple surgical procedure, herein described, which can be readily done at the same time as operation on the caudal portion of the septum.

of the nose, is an important feature of normal respiration. It has been pointed out² that this nasal resistance acts as a rheostat in regulating the depth of respiration.

During inspiration each upper lateral cartilage is

Diagram 1. ROLE OF THE ALAR CARTILAGES IN PRODUCING NASAL RESISTANCE



Onset of Inspiratory Phase

The upper lateral cartilage begins to approach the septum.

End of Inspiratory Phase

Demonstrating the doorstop action of the aponeurosis and lower lateral cartilage in preventing further approximation of the upper lateral cartilage to the septum.

Diagram 2. CAUSES OF ALAR COLLAPSE



1. A long, narrow nose. The upper lateral cartilage touches the septum before the doorstop effect can function.

2. Exaggerated bend of upper lateral cartilage away from septum.

3. Insufficient lateral cartilages. Doorstop action is inadequate.

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*The term "nasal alae," in this presentation, includes the nostrils with their cartilages, the caudal portions of the upper lateral cartilages, and the intervening aponeuroses.

forced toward the septum. When the position of optimum resistance to the air stream is reached, each lower lateral cartilage rotates outward, using the upper lateral as a fulcrum (see Diagram 1). The aponeurosis is then placed on a stretch, and, together with the lower lateral cartilage, acts as a "doorstop" to prevent further movement of the upper lateral cartilage toward the septum. If this "doorstop" action is deficient, the movement of the upper lateral cartilage inward is continued. When it reaches the septum, a collapse of the nasal airway is produced. Proper "doorstop" action, therefore, appears to be fundamental in preventing collapse of the nasal alae.

Pathology of Collapse of the Nasal Alae

Many variations exist in the anatomy of the nasal alae, but of these only a small number account for the majority of instances of collapse (see Diagram 2).

1. *The long, narrow nose.* Here the problem lies in the narrowness of the space between the upper lateral cartilage and the septum. A normal excursion of the upper lateral cartilage would immediately place it against the septum and produce an obstruction to the airway. The "doorstop" effect of the lower lateral cartilage and aponeurosis does not have a chance to get started. The ideal way to deal with this situation would be to correct the anatomy of the region. If that could not be done, a substitute method would be to limit the excursion of the upper lateral cartilage. This can be done by increasing the "doorstop" action.

2. *A deformity of the upper lateral cartilage.* Chesson and Philpott¹ stated: "Normally, the upper lateral cartilage presents a convex surface to the septum. Injury may change the convexity of the presenting surface to a concavity, which results in what Cottle refers to as a ballooning or bowing out of the upper lateral cartilage." This concavity, in the author's opinion, may be on occasions so extreme as to curve the caudal border against the septum. It then leads to an inadequate space, which in turn causes collapse. If this deformity is great enough, the only means of correction is by total reconstruction. Minor degrees can be helped by increasing the "doorstop" action.

3. *Insufficient cartilaginous support in the alae.* This deficiency may be congenital or acquired. The acquired type may follow trauma or infection; it may be caused also by the removal of too much cartilage in a rhinoplastic procedure.

Any of the foregoing variations will bring about a more serious nasal obstruction if a deviation of the caudal portion of the septum is also present. Correction of such septal defects must be included in surgical procedures to alleviate collapse of the alae.

Diagram 3. CORRECTING THE ALAR COLLAPSE BY INCREASING THE DOORSTOP ACTION



1. WITHOUT THE
CARTILAGE
GRAFT.

2. WITH THE GRAFT
IN PLACE.

The graft impedes the excursion of the upper lateral cartilage toward the septum.

Increasing the "Doorstop" Action

It may be noted that in Types 1 and 2 in the foregoing descriptions, the collapse occurs because the space between the septum and lateral wall is narrowed. The proper way to correct such conditions is by means of a nasal reconstruction. When this is not feasible, the alar collapse can be lessened by increasing the amount of the "doorstop" action of the aponeurosis and lower lateral cartilage. This may be accomplished by placing a cartilaginous strut between the upper and lower lateral cartilages (Diagram 3). The overexcursion of the upper lateral cartilage is prevented by the impeding action of the cartilaginous graft which reduces the slack in the aponeurosis.

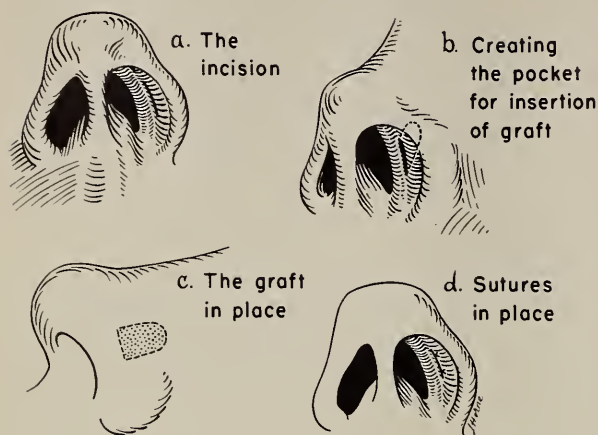
In Type 3 the basic pathologic change is lack of cartilaginous support. In such cases the intranasal space may be adequate, but the lack of cartilaginous support causes a deficiency of "doorstop" action. The excursion of the upper lateral cartilage toward the septum is uninhibited, which results in collapse of the airway. In such cases the restoration of "doorstop" action by the insertion of a cartilage graft is the procedure of choice.

The size and, most important, the thickness of the graft will determine the amount of correction produced. Undercorrection leaves a residual collapse; overcorrection impairs the important "pinchcock" action of the upper lateral cartilage. The exact dimensions of the cartilage strut can be determined by testing the effect of various sizes during the operation.

Surgical Technique

A few drops of 1 per cent procaine hydrochloride solution are injected in each nasal vestibule just below the cephalic border of the lower lateral cartilage. An incision approximately one centimeter long is made parallel and four to five millimeters caudal to the cephalic border. A pocket is created

Diagram 4. PLACING THE CARTILAGE GRAFT



between aponeurosis and skin with a dissecting scissors (see Diagram 4). This pocket should not be larger than necessary to hold the strut.

A piece of cartilage approximately eight to ten millimeters wide and fifteen millimeters in length is placed into the pocket. The thickness of the cartilage depends on the amount of "doorstop" action needed. At this point the surgeon can see whether or not the alar collapse has been corrected. If necessary, the

amount of correction produced is changed by varying the size of the strut. When a satisfactory effect is obtained, the incision is closed with one or two fine silk sutures. Packing is unnecessary.

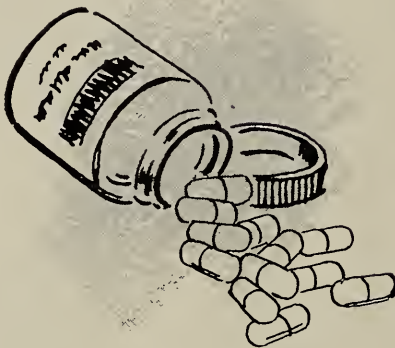
Since this procedure takes only a few minutes, it can be readily combined with other operations. It is especially useful in conjunction with operations at the caudal end of the septum.

The cartilage needed for the implant may be obtained from the septum, although preserved cartilage is also satisfactory. The cartilage may absorb later, but residual fibrosis preserves the "doorstop" effect.

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REFERENCES

1. Chesson, J., and Philpott, I. W.: Some rhinological syndromes and vasomotor rhinitis, *Laryngoscope*, 67:85-99, Feb. 1955.
2. Cottle, M.: *Introduction to the Fundamentals of Reconstructive Surgery of the Nasal Septum and External Nasal Pyramid*. Laboratory Manual, Masonic Hospital, Chicago, Ill., 1953.
3. Fomon, S., Gilbert, J. G., Caron, A. L., and Segal, S.: Collapsed ala, *Arch. Otolaryngology*, 51:465-484, April 1950.
4. Goldman, I. B.: New technique for corrective surgery of the nasal tip, *Arch. Otolaryngology*, 58:183-187, Aug. 1953.
5. Proetz, A.: *Applied Physiology of the Nose* (2nd Edition). Annals Publishing Co., 1953.



Relationship of Ovarian and Thyroid Function

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A NUMBER of clinical observations have led to the suggestion that there is a relationship between the function of the ovary and that of the thyroid gland. For example, at the time of puberty, when there is a pronounced change in the function of the ovary, the development of goiter is very common. Less severe enlargements of the thyroid have been noted frequently during pregnancy when the level of estrogen in the blood is thought to be quite high, or even just before menstruation, again at a time when blood levels of estrogen are thought to be elevated.

Abnormalities of function of the thyroid gland are frequently reflected in irregularities of uterine bleeding. Many investigators feel that hypothyroidism is an important cause of infertility and of abortion.

These relationships bear many implications regarding therapy, and many efforts have been made to discover their exact nature. Some observers have suggested that the thyroid and ovary have a direct effect upon each other. Some have suggested that the effect is mediated through the pituitary.

A great many studies have been made in the past but the results have been confusing. In fact, some of the results have been directly contradictory. For example, an increase in thyroid function has been demonstrated following the administration of estrogens and also following castration. Salter,⁴ who reviewed much of the work, summarized the situation as follows: "It must be admitted that these reciprocal thyro-ovarian relationships are still so complicated that a precise summary of them is not easily possible. There seem to be three general types of interrelationships occurring (1) A peripheral sensitization of the tissues by thyroid hormones to ovarian hormone; (2) an effect of the thyroid on the pituitary ovarian axis and the converse; and (3) an indirect effect upon other glands, such as the indirect effects through the adrenal cortex which can affect sex activity."

It has been suggested that estrogens have their effect on the thyroid by virtue of a "shotgun" effect upon the anterior pituitary, suppressing the release of thyrotropic hormone as well as that of gonadotropins. Pursuing that theory Paschkis and co-workers³ studied in rats the effect of alpha estradiol benzoate, and also the effect of spaying, on the uptake of radioactive iodine. They noted no signifi-

• In an investigation of relationships between ovarian function and thyroid function, three groups of ten women each were studied by means of radioactive iodine uptake. In the first group no significant changes were noted during normal menstrual cycles.

The second group, women who had dysfunctional uterine bleeding and were under treatment with diethylstilbestrol, most of the patients had no significant change in the uptake of radioactive iodine. Three patients did show a small increase in the uptake. (A fourth patient had a very bizarre result with a very great increase in the uptake, but it is felt that some undetected error was involved.)

The third group was made up of women without evident ovarian function. Under treatment with diethylstilbestrol one patient showed a small increase in iodine uptake. The other nine had no significant change.

No convincing evidence was found of any change in thyroid function as measured by the uptake of radioactive iodine—either during normal menstrual cycles or following the administration of diethylstilbestrol in dosages of 3 mg. daily for two to three weeks.

cant effect from either the hormone or the operation.

They pointed out that the production, release, and action of the thyroid hormone is a complex chain of events and that measurement of one step does not mean that differences do not exist in other steps. They also pointed out that the length of time of administration of estrogens is most important since there is good evidence that prolonged treatment with large doses of estrogen, either natural or synthetic, does suppress the pituitary-thyroid axis.

Money and co-workers² agreed that the effects of estrogen administration on thyroid activity depend to a large extent on dosage since large doses definitely depress the thyroid and the basal metabolic rate whereas small doses for short periods of time tend to increase the metabolic rate and the weight of the thyroid gland. They investigated the effect of estrogens on the radioactive iodine uptake of the thyroid gland in rats and noted that 50 gamma of estrone per day significantly increased the iodine collection but that estradiol benzoate did not, even though given in doses as high as 1 mg. per day.

Wolterink and co-workers⁷ also found that the turnover rate of iodine in the rat thyroid depended on dosage of administered estrogen. Thus, one microgram per day for three days increased the output from the thyroid whereas 10 and 100 microgram doses usually depressed iodine turnover.

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This study was authorized by the Research Committee of Los Angeles County Harbor Hospital, Torrance, as Project Number P-28.

TABLE 1.—Patients with dysfunctional uterine bleeding

Case No.	Age	Iodine Uptake Before Treatment (Per Cent)	Period of Treatment (Days)	Iodine Uptake During Treatment (Per Cent)	Change (in Percentage Points)
1.	36	21.3	21	31.0	up 9.7
2.	49	15.8	17	21.3	up 5.5
3.	24	24.0	21	26.8	up 2.8
4.	42	9.1	21	21.6	up 12.5
5.	48	32.5	21	29.0	off 3.5
6.	27	23.0	14	24.0	up 1.0
7.	25	23.0	14	25.0	up 2.0
8.	24	15.0	14	17.0	up 2.0
9.	34	20.0	14	66.0	up 46.0*
10.	36	21.5	16	30.0	up 8.5

*No adequate explanation can be made for the bizarre result which occurred in Case 9.

Soliman and associates⁶ observed a significantly greater uptake of radioactive iodine by rat thyroid during estrus than at other times and suggested it was due to estrogen coming from the ovary.

The effect of exogenous estrogen on serum precipitable iodine was investigated by Engstrom and co-workers.¹ Most of the subjects were patients with metastatic cancer who received diethylstilbestrol in doses of 20 to 100 mg. a day. In all instances the serum precipitable iodine rose. There was some leveling off by the third or fourth week. After the estrogens were stopped the serum precipitable iodine values returned gradually to normal. At least four weeks were required for the maximal decrease.

The work herein reported upon consisted of a study of the effect of estrogens on thyroid function in human females. Recently one of the authors⁵ studied a group of ten normal women by means of radioactive iodine uptake and of protein bound iodine values in the blood determined during the preovulatory phase of a menstrual cycle and then repeated during the postovulatory phase of the same cycle. As the data showed no significant differences between the two phases of the menstrual cycle, it was concluded that the changes in secretion of ovarian hormones which occur during the menstrual cycle are not associated with any change in the function of the thyroid gland demonstrable by these tests.

The present study was of a group of 20 women. The first ten were patients with irregular uterine bleeding. The age range was from 24 to 49 years. Organic causes for the bleeding had been ruled out and it was elected to treat these patients with diethylstilbestrol. All the patients received 3 mg. per day. Before treatment was started, radioactive iodine uptake was determined. Then after the patient had been receiving diethylstilbestrol for two to three weeks, the uptake was determined again. Before the second dose of iodine was administered another radioactivity count was done in order that any possible residue from the first dose of iodine might be

TABLE 2.—Patients without ovarian function

Case No.	Age	Iodine Uptake Before Treatment (Per Cent)	Period of Treatment (Days)	Iodine Uptake During Treatment (Per Cent)	Change in Percentage Points
1.	50	14.2	21	21.6	up 7.4
2.	63	7.0	21	10.3	up 3.3
3.	34	24.1	28	22.0	off 2.1
4.	47	29.9	21	23.5	off 6.4
5.	45	32.7	21	36.9	up 3.8
6.	70	30.6	21	30.0	off 0.6
7.	80	21.2	21	17.8	off 3.4
8.	74	16.0	21	21.0	up 5.0
9.	85	20.0	21	22.0	up 2.0
10.	76	15.4	21	28.0	up 12.6

taken into account in calculating uptake the second time. The results are shown on Table 1.

The normal range for uptake as determined in the same laboratory is 10 per cent to 35 per cent, so it can be seen that the ten patients were all euthyroid before treatment. The uptake for a given patient may fluctuate by as much as 7 percentage points over a period of time; hence, changes of less than 7 points are not significant. Therefore it can be seen that for the majority of the patients no significant change was produced by the diethylstilbestrol. In cases 1, 4 and 10, however, the changes were possibly significant. (Case 9 is not considered here, owing to the questionable result.) The uptake in these patients was raised 9.7, 12.5 and 8.5 percentage points, respectively. For all patients except one, whatever change occurred in the uptake was an increase. No adequate explanation can be made of the bizarre result in Case 9. The patient was not clinically hyperthyroid at the time of the second uptake and it is believed there must have been error in the determination, although none could be discovered.

In order to rule out, as much as possible, any contribution by endogenous estrogens a third group of ten women was studied. The subjects were women without any evident ovarian function—postmenopausal women for the most part, but also including two younger castrated women. Specimens of material from the vaginal walls were obtained before treatment and during treatment. They showed the expected absence of estrogenic effect before treatment but good effect during treatment. Each of these patients also received 3.0 mg. of diethylstilbestrol daily and iodine uptake studies were made in the same manner as in the previous group of patients. The results are shown on Table 2.

The initial uptake for the second patient was a bit below the usual normal limit in this laboratory. The rest of the patients were all in the euthyroid range. Here again any changes noted in the uptake were not of significant magnitude except for patient 10 in whom the increase in uptake was 12.6 percentage points. The small changes in uptake that did occur were highly variable. In four of the patients

some decrease in the uptake was noted, and in the remaining six some increase.

Most of the recent evidence indicates that when a change in thyroid function is produced by estrogens it is in the direction of increase in thyroid activity. The suggestion has been made that dosage is a very important factor—that large doses of estrogen will depress thyroid activity. However, Engstrom and co-workers¹ administered rather large doses of estrogen for a number of weeks and noted a uniform rise in serum precipitable iodine.

In the patients studied by the authors no convincing evidence was obtained of a change in thyroid function either from the physiologic variations in endogenous estrogen or from the diethylstilbestrol administered in these doses. In a few patients there was some suggestion of an increase in thyroid activity. It will be interesting to note what changes are produced when higher doses of stilbestrol are used and also what the effect of other estrogens will be, since the suggestion has been made that different estrogens have different effects in this sphere of action.

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REFERENCES

1. Engstrom, Markardt, and Liebman: Effect of estrogens on serum precipitable iodine, *Proc. Soc. Exper. Biol. and Med.*, 81:582, 1952.
2. Money, W. L., Kirschner, Kraititz, Merrill, and Rawson: Effects of adrenal and gonadal products on the weight and radioiodine uptake of the thyroid gland in the rat, *J. Clin. Endocrinol.*, 10:1282, Oct. 1950.
3. Paschkis, K. E., Cantarow, A., and Peacock, W. C.: The influence of estrogens on thyroid function as measured by uptake of radioactive iodine, *Proc. Soc. Exper. Biol. & Med.*, 68:485, 1948.
4. Salter, W. T.: The chemistry and physiology of the thyroid hormone, *The Hormones Vol. II*, New York Academic Press, Inc., 1948.
5. Singh, B. P.: *Am. J. Ob. & Gyn.* in press.
6. Soliman, and Reineke: Changes in uptake of radioactive iodine by the thyroid of the rat during the estrous cycle, *Am. J. Physiol.*, 178:89-90, July 1954.
7. Wolterink, Lee, Olsen, and Murray: Effect of estrogen on iodine turnover in thyroids of rats and mice, *Federation Proc.*, 9:138, 1950.

Discussion by KEITH P. RUSSELL, M.D., Los Angeles

The delineation of functional relationships between the thyroid and ovarian glands is a subject which has long defied precise scientific evaluation. Although there is a wealth of clinical observations to indicate the presence of such relationships, experimental investigation has commonly led to results that are equivocal or inconstant. For these reasons, the use of thyroid therapy in functional gynecologic and obstetrical disorders is difficult to debate since, as Novak notes, "neither the proponents nor the opponents, much less the enthusiasts or the skeptics, can support their beliefs—with any great amount of scientific proof."

In spite of these difficulties, there appears to be accepted by most clinicians the existence of rather

direct thyroid-ovarian interactions, in addition to effects mediated through the pituitary. One cannot ignore the high incidence of menstrual irregularities occurring with disorders of the thyroid gland, whether associated with hyperfunction or hypofunction, and the subsequent return to normal rhythmicity on the institution of proper and adequate therapy. This has been well demonstrated from a clinical standpoint by Benson and Dailey in their studies on premenopausal women with demonstrable hyperthyroidism and posttherapy hypothyroidism.

In the reproductive field, the existence of a direct cause-and-effect relationship between thyroid dysfunction and gestational pathophysiology has likewise been difficult to establish, in spite of clinical impressions of a supportive nature and the use of empiric therapy with apparently beneficial results. Some progress has been made in this respect through studies of protein-bound blood iodine levels in pregnancy. Our own reports have been in accord with the original observations of Heinemann, Johnson and Man in showing that the PBI (indicative of circulating thyroid hormone) normally rises early in pregnancy, and that persistently low levels are associated with an increased incidence of abortion. Studies now in progress would indicate that when these lower levels respond to thyroid therapy the pregnancy salvage rate is significantly increased. Nor do we believe that thyroid therapy in infertility may be termed a "myth," even though experimental evidence for such relationships may not be altogether conclusive. Means, after thirty years devoted to studies of the thyroid gland and related disorders, has termed "striking" the relief of certain cases of sterility and of habitual abortion by thyroid therapy.

It is becoming apparent that one more endocrine component must be added to the complex that is commonly designated as the pituitary-thyroid-ovarian axis. This is the adrenal cortex. The frequency with which ovulation can be produced by giving cortisone in certain cases of postpubertal adrenal cortical hyperplasia, and similar responses in secondary sex characteristics to cortisone administration in infantile and juvenile adrenal hyperplasia emphasize the intimate role this gland plays in the integrated sexual endocrine pattern. Future studies must take this gland into account when assessing generative functions.

All of these complexities, then, add to the problem facing the investigator who wishes to demonstrate specific gland interactions. For those of us whose beliefs are that close functional thyroid-ovarian relationships exist, Dr. Dignam's report has offered some support, tenuous though it may be. His finding that a slight to moderate rise in iodine uptake was produced by diethylstilbestrol is in accord with the investigations of Engstrom. It is my feeling that further technical refinements in radioactive iodine studies and in the determination of protein-bound blood iodine, together with improved methods of FSH and LH estimation, will give us added valuable information in this complex field of the relationship between thyroid and ovarian function.

Resistant Urinary Tract Infections

Combined Autogenous Vaccine and Drug Therapy

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ADEQUATE IMMUNITY FACTORS bear important relationship to the effectiveness of drug therapy in urinary tract infections, for they can be synergistic with drugs in relief of disease.

Host resistance (immunity) to infection is of two main types—acquired and natural. *Acquired immunity* follows external influence and is due to presence of antibodies. *Natural immunity* is an inherent individually variable constitutional property of man and animals.

The importance of the host's resistance or immunity to infection has received scant attention by urologists in recent years, owing to the immediate dramatic responses to chemotherapeutic agents and antibiotics in many cases. Now the need for attention to improvement of a patient's immunity is becoming more important for several reasons: The increasing number of drug-resistant bacteria, toxic effects of antibiotics, the large numbers of superinfections, and allergic sensitivity to drugs.

Meyer³ in 1938 demonstrated the ineffectiveness of chemotherapy without the presence of adequate numbers of antibodies. In experiments that he reported, vaccinated mice treated with sulfapyridine survived an otherwise lethal streptococcic peritonitis. A high opsonic index was noted in animals receiving such combined treatment whereas control animals, either vaccinated or treated with sulfapyridine alone, all died and had minimal phagocytosis of streptococci in the peritoneal exudate.

Hence the author made a study of a method of treatment combining drug therapy with measures to enhance immunity in cases of drug-resistant urinary tract infection. Patients who previously had been treated with all appropriate drugs and combinations, without effect, were considered for "combined therapy," which consisted of (1) stimulating immunity with autogenous vaccines, stock vaccines or gamma globulin for "priming" of host resistance, followed by (2) drug therapy with sulfonamides, administration of antibiotics orally or parenterally, and urethral instillations of neomycin, bacitracin or polymyxin or combinations of these.

• The "miracle" antibiotics and sulfa drugs have been found unsatisfactory in treating certain severe resistant urinary tract infections apparently due to lack of immunity factor in the patient. Of a series of 56 patients with resistant urinary tract infection who were treated with autogenous vaccine and then with sulfa drugs, 26 were completely cured.

The present report will deal with results obtained in 56 cases in which combined autogenous vaccine and sulfonamide therapy was used. Autogenous vaccine was made with from one to three kinds of organisms found in the urinary tract of the patient.

Autogenous vaccine, 0.1 cc. weekly, was given intradermally in 25 cases and subcutaneously in 31 cases. Sulfadiazine and triple sulfa combinations were used in most cases. Sulfisomidine, sulfisoxazole and sulfamethylthiadiazole were also used. Since the series was small no attempt was made to correlate the results with the various sulfonamides used.

Of the 56 patients, 23 were bacteriologically and clinically cured and 33 had persistent pyuria (Table 1). Three of the 33 were finally able, however, to undergo corrective operation with resultant cure of pyuria; and it was of interest in those cases that the postoperative course was extremely smooth in spite of operation in a field definitely infected by antibiotic-resistant organisms. It was conjectured that the vaccine might have had some influence.

Methenamine mandelate had no effect either before or after the vaccine was given in any of the patients. Nitrofurantoin N.N.R. was given to some of the patients after the therapy described gave no benefit, but it had no effect.

Redewill,⁵ in a paper on antibiotic combinations which he presented in 1952 before the Western Section of the American Urological Association, discussed a related subject, just at the time when the earlier patients in the present series were being treated. Redewill described a unique method of producing a more specific gamma globulin by using donors previously vaccinated against resistant bacteria common in urinary tract infections. It is of note in this regard that one patient in the present series with long-standing infection of the urinary tract, who had been treated unsuccessfully with combined

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TABLE 1.—Results of therapy of resistant urinary tract infection with autogenous vaccine and sulfa drugs

Disease	Total		
	Number	Cure	Failures
Recurrent cystitis and urethritis.....	17	9	8
Prostatitis, urethritis, with urethral strictures well dilated.....	19	8	11
Chronic pyelonephritis (Postparathyroid-adenectomy, calculi, 1 case); (Postoperative Staghorn calculi, 1 case); (Severe Friedlander's bacilluria, 1 case)	8	3	5
Diffuse leukoplakia of bladder.....	1	....	1
Empyema and calculus in stump of ureter	2	....	2
Multiple urethral diverticuli.....	1	....	1
Stricture after radical perineal prostatectomy	1	1	....
Postirradiation cystitis	1	....	1
Persistent postprostatectomy pyuria (all with trabeculation and cellules).....	6	2	4
	56	23	33

autogenous vaccine and sulfa drugs, brought two large ampules of gamma globulin to the author with the request that they be given to him. He had been exposed to poliomyelitis, he explained, and the ampules of gamma globulin had been given to him by the health department. The patient was receiving sulfonamides for pyuria at the time. The gamma globulin was injected and a week later the urine was free of pathogenic organisms for the first time in two years. It seems probable that the antibodies or natural immune factors present in the gamma globulin were responsible for the cure. Whether the sulfonamide action was enhanced by synergism is a matter of conjecture.

DISCUSSION

Synergism between specific antibodies and sulfonamides has been suggested in other reports. Cokkinis and McElligott¹ suggested that sulfonamides in treating gonorrhea were most effective in patients who had had the disease long enough to acquire some immunity. Some observers believe the mode of sulfonamide action is to render the organisms more susceptible to the host's antibodies (Meyer³). Until more is known regarding the bacteriostatic action of antibodies, sulfonamides and antibiotics, this mechanism cannot be conclusively interpreted.

The future may bring combined mixed stock vaccines which will be long-acting after a single injection. Further studies of gamma globulin and properdin may make specific injectables available.

Urologically, the immune factor may be valuable, with the evidence pointing to lack of excretion of antibiotics by the prostate gland (Pulaski⁴).

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REFERENCES

1. Cokkinis, A. J., and McElligott, G. L. M.: Sulphanilamide in gonorrhea, *Lancet*, 2:355-362, Aug. 13, 1938.
2. Meyer, F.: Streptococcus infection and the mechanism of its healing by serum and chemotherapy, *Quarterly Bulletin, Sea View Hospital*, 2:148-154, 1937.
3. Meyer, F.: New studies in sulfanilamide therapy, *Quarterly Bulletin, Sea View Hospital*, 3:380-404, 1938.
4. Pulaski, E. J.: Personal communication, 1946.
5. Redewill, F. H., Sr., Melicow, M. M., and Redewill, F. H., Jr.: Antagonism between bactericidal and bacteriostatic antibiotics in treating urological cases, paper presented at annual meeting of Western Section, American Urological Association, Pasadena, 1952.



CASE REPORTS

Carcinoma of the Ovary

Eight-year Survival After Operation for Carcinoma with Ascites of Three and a Half Years' Duration

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A TUMOR LEADS to the diagnosis or suspicion of its existence because it bleeds, because it can be seen or felt, or because it interferes with the function of the organ in which it arises.

Carcinoma of the ovary often reaches an inoperable stage without becoming manifest in any of these ways, and for this reason it is one of the most treacherous malignant tumors. Except for the resumption of menstruation in a woman past menopause when a granulosa cell tumor develops, symptoms are frequently absent altogether, or they may consist merely of vague abdominal discomfort and malaise until the patient notices an enlargement of the abdomen.

This abdominal enlargement is often due to ascites rather than to the size of the cyst, and there is considerable likelihood of secondary peritoneal carcinomatous implants. For this reason, carcinoma of the ovary is often considered among the less favorable malignant tumors from the standpoint of prognosis. The case here reported demonstrates that such pessimism may be unwarranted, and that more attention should be paid to the extent or stage of the tumor.

It should also be borne in mind that not only tumors of questionable malignancy but even cystadenomas and fibromas are capable of producing ascites. The presence of ascites does not of itself entail a serious prognosis unless carcinoma cells are observed in fluid obtained by a simple tap, as happened in the present case. It is felt that ascites associated with cystadenocarcinoma decreases the chances of cure even when no such cells can be demonstrated.

Table 1 is a composite of data on operative curability of carcinoma of the ovary available from the literature of the last two decades. All consideration of benefits from x-ray therapy has been purposely omitted. The five-year survival rates in cases of

cystadenocarcinoma ranged from 16 per cent to 35 per cent, averaging 29 per cent. In the case of pseudomucinous carcinoma, the statistical chances of cure are somewhat better.

To be stressed here, however, is the 57 per cent of five-year survival among patients with tumors limited to one or both ovaries, as compared with 14 per cent among those in whom tumors had spread beyond the original focus. This difference emphasizes the prognostic importance of considering the stage or extent of the tumor—a factor which is not generally taken into consideration to the same degree in ovarian cancer as when dealing with carcinoma of other organs.

REPORT OF A CASE

A woman 37 years of age was told in 1940 that she had a right ovarian cyst, but operation was not recommended. At that time, symptoms consisted of fatigue and discomfort in the lower abdomen when jarred, as might happen in stepping off a curb.

Enlargement of the abdomen was first noted in the fall of 1943. In the spring of 1944, the abdomen was tapped for the first time, and clumps of malignant cells were observed in the sediment. A pelvic examination was done, but no lesion was discovered. The primary focus being unknown, treatment was limited to general supportive measures and periodic tapping of the abdomen. With the progressively more rapid formation of fluid, the patient had to give up her job. Finally, in 1946, she was admitted to the hospital at the Laguna Honda Home as incurable.

Several months after the patient was hospitalized, however, a house officer, observing that her general condition was not deteriorating, became dubious about the hopeless diagnosis with which she had been admitted. In order to verify the extent of the peritoneal carcinomatosis, peritoneoscopic examination was carried out, and 20,000 cc. of fluid was aspirated. At this examination, a cauliflower mass was seen arising in the pelvis. The upper abdomen was not visualized because of numerous postcholecystectomy adhesions, but the peritoneal surfaces of the lower abdomen were free of implants. A specimen was taken for biopsy, and it confirmed the diagnosis of carcinoma.

From the Surgical Service of the University of California at Laguna Honda Home, San Francisco, California.

Submitted November 15, 1955.

TABLE 1.—Data from the literature on five-year cure rates of ovarian cancers of various classifications

Authors	Total Cases	5-Year Cures		Tumor Limited to One or Both Ovaries			Tumor Not Limited to Ovaries			Serous Cystadenocarcinoma			Pseudomucinous Cystadenocarcinoma		
		No.	Per Cent	Total Cases	5-Year Cures		Total Cases	5-Year Cures		Total Cases	5-Year Cures		Total Cases	5-Year Cures	
					No.	Per Cent		No.	Per Cent		No.	Per Cent		No.	Per Cent
Allan and Hertig ¹	239	83	35	118	53	45	147	30	21	143	51	35	51	24	47
Benson and co-workers ² ..	100	31	31	26	20	77	74	11	15	Not indicated			Not indicated		
Kimbrough ³	89	38	43	33	28	85	34	7	21	Not indicated			Not indicated		
Meigs ⁴	147	24	16	Not indicated			Not indicated			Not indicated			Not indicated		
Munnell and Taylor ⁵	178	55	31	71	46	65	107	9	9	106	38	36	14	9	65
Pemberton ⁶	114	37	32	Not indicated			Not indicated			90	25	27	23	12	52
Taylor and Greeley ⁷	138	22	16	44	20	46	50	2	4	63	9	14	25	5	20
	1,005	290	29	292	167	57	412	59	14	402	123	30	113	50	44

On January 27, 1947, laparotomy was done and total hysterectomy with bilateral salpingophorectomy was performed. Thus, the operation was carried out three and one-half years after the onset of ascites. The tumor was limited to both ovaries. The ovaries were cystic, with superimposed cauliflower masses, measuring 10 cm. on one side and 8 cm. on the other.

The patient made an uneventful recovery. There was no further reaccumulation of the ascitic fluid.

More than eight years have now elapsed since the operation, and there has been no evidence of recurrence of the tumor. It may be of interest to note that two years ago a primary cancer of the breast developed, for which radical mastectomy was performed.

SUMMARY

A case report is presented of a patient who has survived more than eight years following surgical removal of an ovarian carcinoma diagnosed three and one-half years earlier as incurable. This, together with survival data from the literature, sug-

gest that the stage or extent of the tumor should be carefully evaluated before considering any case of cancer of the ovary to be inoperable.

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REFERENCES

1. Allan, M. S., and Hertig, A. T.: Carcinoma of the ovary, *Am. J. Obst. and Gynec.*, 58:640-653, 1949.
2. Benson, R. C., Sherman, R. S., Jr., and Lucia, E. L.: The factors influencing prognosis in the treatment of papillary cystadenocarcinoma of the ovary, *West. J. Surg.*, 61:387-407, 1953.
3. Kimbrough, R. A.: In discussion of Lynch, F. W.: A clinical review of 110 cases of ovarian carcinoma, *Am. J. Obst. and Gyn.*, 32:773-774, 1936.
4. Meigs, J. V.: Cancer of the ovary, *Surg., Gynec. and Obst.*, 71:44-53, 1940.
5. Munnell, E. W., and Taylor, H. C., Jr.: Ovarian carcinoma, *Am. J. Obst. and Gynec.*, 58:943-959, 1949.
6. Pemberton, F. A.: Carcinoma of the ovary, *Am. J. Obst. and Gynec.*, 40:751-763, 1940.
7. Taylor, H. C., and Greeley, A. V.: Factors influencing the end-results in carcinoma of the ovary, *Surg., Gynec. and Obst.*, 74:928-934, 1942.



EDITORIAL

A Guide for Fees

NEARLY ALL the confusion and many of the economic injustices resulting from poorly designed fee schedules can now be ended. The way to this most desirable goal has been cleared by the C.M.A. Council's official adoption of standards for fee schedule nomenclature and relative values. These standards are contained in a Relative Value Fee Study report just made by the Committee on Fees of the C.M.A. Commission on Medical Services. The report will be found on page 211 of this issue of CALIFORNIA MEDICINE.

In its study the committee had no intention of setting anyone's fees or anyone's schedule of fees. The relative value study is in no sense a fee schedule. It sets forth relations existing between fees in California. Listing no fees in dollars, it sets no fees.

The need for such standards has long existed. Without a common nomenclature, it has been next to impossible to evaluate and compare fee schedules one with another. Without a listing of correct relative values of fees, health insurance schedules have inevitably paid too much for some procedures and not enough for others. Neither individual nor group purchasers of indemnity insurance have had understandable guides to the determination of the adequacy of their coverage—guides by which a layman, examining an insurance policy, can determine which of a long list of wholly unfamiliar medical and surgical benefits can be expected to pay a greater or lesser part of the physician's fee. Physicians have found it necessary to examine each fee on each new fee schedule issued by an insurance company in order to determine its degree of acceptability to them. The profession has demonstrated fault in every fee schedule yet produced, even the schedules designed by C.M.A. committees for California Physicians' Service. In the absence of standards, confusion, disappointment with health insurance, and economic injustice for physician, for insured patient or for the insurance company have been the rule.

The medical profession, and not insurance companies or others, should set standards for fee schedules. As observed by Francis J. Cox, M.D., chairman of the committee that has struggled with this assignment since August, 1952, "It is the exclusive right and the exclusive duty of physicians to set and interpret fees."

The nomenclature adopted as standard followed a pattern developed by Blue Shield-Blue Cross nationally. The standards for relative values of fees were established by survey of the membership of the California Medical Association.

Now that standards of nomenclature and relative values have been officially adopted by the profession in California, we hope for and urge their early use by everyone concerned with setting up fee schedules and health insurance indemnities, by everyone who buys, sells or administers health insurance or who controls other private and public plans and mechanisms through which money is paid for the services of doctors of medicine.

If widespread conformance to these fee schedule standards does follow C.M.A.'s action, here are some of the principal advantages that can be expected:

1. Anyone who is familiar with one fee schedule could at a glance evaluate another. By looking at only one fee in each of the four sections of the schedule—medicine, surgery, radiology, pathology—one would know immediately how high or low the entire schedule had been set, for each fee is related to all others in the schedule. We would no longer have to look at every procedure, examine its definition, evaluate each payment allowed.

2. Prospective purchasers of indemnity health insurance could quickly compare benefits of one policy with those in another and could estimate approximately what part or percentage of medical and surgical costs in his community would be paid by the insurance benefits offered. For example, if he knew that the going fee in his area for appendectomy is

\$200 and the proposed insurance pays \$150 for that procedure, he could expect to pay around one-third more than his insurance benefit for any other surgical procedure. He would not find himself with a schedule of benefits that bear little relationship to physicians' charges, as he often does today.

3. Once the better insurance companies adopt C.M.A. standards for their indemnity schedules, purchasers of health insurance will learn to stop buying plans that tend to mislead by displaying large cash benefits for procedures that are rarely performed, but allow small benefits for procedures frequently performed. We could even hope to see a legend such as the following printed at the beginning of indemnity schedules in insurance policies: "Prepared in accordance with the nomenclature and relative value standards of the California Medical Association."

4. C.P.S. fee schedules can be revised to reflect the relationship between fees which exists in practice throughout the state. The relative values reported by the Committee on Fees are based upon the fees charged in their practices by the forty-seven hundred California physicians who responded to the committee's survey.

There are other valuable applications of the relative value study. A physician coming into a new community will now need to determine the fees charged by local physicians for only a few procedures in order to set up his own complete schedule of fees, using the relative value study as a guide. County society public service committees can use the C.M.A. study to determine the reasonableness of a fee about which a patient has complained, relating it to other fees charged in the community. Many physicians will reexamine their own fees for some procedures in terms of relative values established by the state-wide study. The study can also be used to demonstrate inequities in fee schedules now used by certain government agencies, with request for revisions.

* * *

The Committee on Fees had many good reasons for expressing relative value standards for fee schedules in units rather than in dollars. Here are four:

1. The level of fees varies throughout the state under the influence of many factors. But analysis of the survey results reveals that the *relationship* between fees for most procedures remains almost the same, even in widely separated geographical areas. Expressed in dollars, these relationships would have been misleading and incorrect for many areas. Expressed in units, they are accurate and useful.

2. Health insurance in California today requires fee schedules and indemnity schedules at many different dollar levels. C.P.S. needs different fee schedules for different income ceiling plans. Many groups want to buy indemnity insurance that pays benefits

approximating the usual fees charged by physicians. Others want adequate protection at a low premium and will accept an element of co-insurance. This is achieved in health insurance by setting the indemnity schedule at a dollar level that is lower than the fees the insured knows he will have to pay his physician. The relative value study, expressed in units, may be used as a guide in setting any and all of these schedules with widely varying dollar levels but retaining a constant relationship between fees so that everyone—physicians, patients and insurance companies—can tell at a glance just how much higher or lower each schedule is.

3. The relative value schedule will require change to keep abreast of the changes in medicine. New procedures are introduced. Others become obsolete. New methods of doing the same procedure increase or decrease the amount of time or skill required, with a resulting change in the compensation the physician should receive for the service. Changing a fee schedule expressed in dollars is difficult and often requires years of work and negotiation. The relative value study, expressed in units, can readily be changed by the results of new surveys from time to time, which are recommended by the Committee on Fees. Thus the standards can be changed to reflect new facts of medical practice. Changes in the dollar schedules can follow one by one.

4. The Commission on Medical Services wanted to avoid any implication that it is setting the level of anyone's fee or fee schedule. The relative value study is in no sense a fee schedule. It reveals relations existing between fees in California. Listing no fees in dollars, it sets no fees.

The relative value study is a significant contribution to health insurance and to all who are concerned with it—physicians, insurance companies, C.P.S. and most of the people of California. We believe Dr. Cox and his committee will soon realize their hope "that it will make good, adequate insurance, which allows free choice of physicians, easier to produce, buy, sell and administer . . . that it will be used to eliminate some of the obvious inequities in all fee lists."

Salk Vaccine, 1956

IN LIGHT OF REPORTS that the incidence of poliomyelitis was less in children who were injected with the Salk vaccine last spring, physicians and the general public are keenly interested in the further use of the vaccine that is now being made available, even though wary as a result of the dangers found to be associated with some of the vaccine produced last year by methods that were officially approved at that time.

In these circumstances, physicians are of course

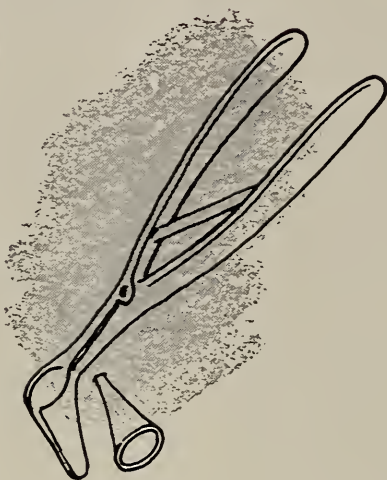
concerned with the problem of what advice to give to parents who must decide whether to have a child injected with the Salk vaccine.

Even though there has been of late a great outpouring of information on the subject from the National Foundation for Infantile Paralysis, it seemed prudent to get the advice of the most experienced physicians in the field of poliomyelitis in California.

To this end the C.M.A. Executive Committee, with the Council's approval, appointed a committee of

experts to study the present status of the Salk vaccine. The committee's report appears on page 215 of this issue. It is supplied to help each physician determine what advice he will give as to use of the vaccine.

This action was in line with the stand taken last May by the Council of the California Medical Association in its statement on the need for careful dissemination and appraisal of data on newly introduced medical procedures of any kind.



California MEDICAL ASSOCIATION

NOTICES & REPORTS

FEES—Relationship of Values

Report of the Committee on Fees of the Commission on Medical Services on The Results of Relative Value Study

Editor's Note: The relative value report herein referred to was adopted by the Council of the California Medical Association February 12, 1956. The extensive detailed lists of unit values for all the various medical procedures are not yet ready for widespread distribution. They are being prepared and it is expected they will be available about May 1.

To the Council of the California Medical Association:

Assignment and Techniques

Since August 1952, the California Medical Association has repeatedly expressed the need for study of and information on the relative money-value of one medical service to another. For instance, if an appendectomy is worth "x" dollars, how much added to "x" would constitute a reasonable fee for a hysterectomy? To the best of our knowledge, no definitive study of this problem has ever been made.

On March 10, 1953, the Commission on Medical Services of the California Medical Association appointed a subcommittee on Principles of Fee Schedules* in order to develop this information, the purpose of which was to bring order out of several varieties of chaos:

1. The chaos of many county medical society fee studies, no two of which contained similar procedures, or similar nomenclature, and which were, therefore, not useful from a statewide point of view.

2. The chaos of some private insurance company fee schedules, which express no rational relationship between fees.

Such information will also assist in continuing the improvement of C.P.S. fee schedules.

In order to save money and effort, the committee first tried to develop a statewide fee relationship from the mass of information available in other fee studies. Because of the variations in techniques, nomenclature, and numbers and types of procedures, we were forced to abandon this technique and to make our own survey, using the standard nomenclature of the Blue Cross-Blue Shield Actuarial and Statistical Manual.

After developing a survey questionnaire, we started with a pilot survey in Orange and Sacramento counties, in order to make our mistakes on a small, but representative scale. We reported what we learned, and were given \$15,000 with which to conduct a statewide survey.

Forty-seven hundred California physicians responded to this survey, and the information obtained from their responses was transcribed to IBM cards. An established statistician, recognized for his work

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*Changed to Committee on Fees in 1955. Members: F. G. Hollander, San Diego; Donald C. Harrington, Stockton; Henry Dean Hoskins, Oakland; Leon O. Desimone, Los Angeles; James Graeser, Oakland; DeWitt K. Burnham, San Francisco; Orville W. Cole, Long Beach; Francis J. Cox (chairman), San Francisco.

in medical economic research, came to California to consult with us and after careful examination, he assured us that our information and sample were adequate and worthy of statewide application.

With the assistance of the consulting actuary firm of Coates, Herfurth and England, we tested this assurance with a statistically valid number of procedures which in the aggregate accounted for from 90 per cent to 95 per cent of all payments to physicians. These procedures were run through the IBM machines again, first, on the basis of each individual county, and second, on the basis of a division of counties into ten geographical groups. A very high correlation developed from these tests when we compared the median fees charged in each county and each geographical group with the median fee charged statewide. We applied other more detailed tests, and because of the close correlation achieved, we felt that development of a relative value schedule for the state as a whole was statistically justified.

Most of the procedures listed in the study originated in the survey, which was prepared with a view to eliminating obsolete procedures and adding new and recent procedures. Your committee feels that the study now reflects with accuracy the actualities of the practice of medicine in California today. The additions were recommended to your committee by physicians representing each field of medical practice, together with the relative value they suggested should be assigned to each procedure added. When more than one specialty made differing recommendations as to the relative value of a procedure, the committee named a figure after consideration of all arguments.

We have been confronted with the proposition that we should make two relative value studies, one for general practitioners and the other for specialists. To forestall this proposition, may we say that this has been discussed by your committee, which considers such a proposal unworkable and not in keeping with the assignment of this committee. There are a number of reasons for this which became clear upon consideration.

To forestall any doubts we should say also that this study has nothing to do with recommending or setting anyone's fees. Nor are the results of this survey permanent. When it is necessary to make changes or to revise relative values, C.P.S. and insurance carriers may be informed of such necessity, and this committee is the logical study group which should evaluate and expedite such changes.

Our relative value study is divided into four separate sections: (1) Medicine, (2) Surgery, (3) Radiology and (4) Pathology. These sections should be considered and used separately. Relative values in one section should not be related to relative values in another.

We hope that this study will be used by insurance companies in setting their indemnities, that C.P.S. will use it in setting its payments, and that insured groups will use it to measure the sensibleness of the coverage for which they pay their premiums. We hope that it will make good, adequate medical coverage, which allows free choice of physicians, easier to produce, buy, sell and administer. We hope that it will be used to eliminate some of the obvious inequities in all fee lists, and that it will establish the exclusive right and the exclusive duty of medicine to set and interpret its fees and the methods by which physicians will be paid. We hope it will help adequately to protect the insured patient and fairly to compensate the physician.

Mechanics of the Study

The result of our statewide survey of physicians' fees was a list of median and modal fees for each procedure, expressed in dollars. But this was not our assignment. Our assignment was to discover and report the *relationship* or *relative value* that one procedure bears to another, not the dollars charged.

To illustrate, let us consider the fees for two surgical procedures—an appendectomy and an ocular muscle transplant. Looking at the median and modal dollar figures on our survey list, we found that the fee for an ocular muscle transplant was exactly twice that for an appendectomy. Then, on a relative value scale, if an appendectomy is one unit, an ocular muscle transplant is two units; if an appendectomy is 35 units, an ocular muscle transplant is 70 units.

We were not commissioned to report that the modal or median *fee* for an appendectomy in California is \$125, \$150 or \$200, that the fee for an ocular muscle transplant is \$250, \$300 or \$400. We *were* directed to determine the *relationship* of these and other procedures to each other.

Thus, if in a hypothetical community, \$150 is the usual fee for an appendectomy, \$300 should then be a fair fee for an ocular muscle transplant. In another area, where the usual fee for an appendectomy is \$200, we could expect \$400 to be the usual fee for an ocular muscle transplant. If an insurance company's schedule allows \$125 for an appendectomy, it should reasonably allow \$250 toward an ocular muscle transplant *if* the proper relative values, as determined by our study, are applied and *if* the indemnity for an ocular muscle transplant is to bear the same relation as the indemnity for an appendectomy to usual fees in California.

Not wanting to express these relationships in dollars but in unit values, we multiplied all of the dollar figures resulting from our survey by an arbitrarily chosen "conversion factor."

Multiplying all dollar figures by the same "conversion factor" conserved the *relationship*, but elim-

inated the dollar figures from our *relative value* study. The result was a *unit value* rather than a dollar value for each procedure.

To illustrate, suppose our arbitrarily chosen conversion factor were .25 (which it was not). And suppose the median and modal fee for a hospital visit in California were \$4.00 (which it is not). We multiply \$4.00 by .25 which equals 1.0, the relative unit value of a hospital visit. Multiplying each dollar figure on the schedule by .25, we come up with a relative value list (as shown in Table 1).

What good is such a list of relative values? How do you use it? How can you convert these relative values back to dollars?

Suppose you want to adjust your individual fees in order to correlate them to the relative fees charged by a majority of California physicians. If, for example, you normally charge \$200 for an appendectomy (3261), which has a relative value of 35.0, how much should your fee be for a Cesarean section (4801) which has a relative value of 50.0? Use this formula: \$200 is to 35 as "x" is to 50. Express it like this: $\$200/35 = x/50$. Multiply $\$200 \times 50$, which is \$10,000. Divide by 35 and your answer is \$285.71—or the dollar value of a Cesarean section.

Or you can establish your own conversion factor. Using our example, \$200 for an appendectomy is approximately 571 per cent of 35, its relative value. Take 571 per cent of the relative value of each procedure and you will have a fee schedule with correct relative values based upon \$200 for an appendectomy. You will arrive at a schedule (see Table 2).

Relating medical fees one to another: If your fee for a follow-up office visit is \$4.00, your conversion factor would be 400 per cent (\$4.00 divided by 1 equals 4.0 or 400 per cent). Then your own medical relative value schedule, based upon a \$4.00 office call, would be (see example, Table 3).

If you do laboratory work, and want to test the relationship of your fees one to another against the relative value scale, select a common procedure, such as a complete blood count (8628). If, for example, you charge \$5.00 for this procedure, which has a relative value of 1.0 on the pathology relative value scale, your factor is 500 per cent. (For hypothetical examples, see Table 4.)

Other purposes of the relative value study are to assist insurance companies in setting their indemnity schedules and to assist the purchaser of insurance in testing the benefits he is buying.

Here is how one may use the relative value study to test an insurance company indemnity schedule:

A typical schedule starts with \$150 for an appendectomy. The relative value for an appendectomy is 35; \$150 divided by 35 gives a conversion factor of

TABLE 1

Procedure No.	Procedure	Relative Value in Units
001	Office visit (first call—routine history and necessary examination)	2.0
002	Hospital visit	1.0
003	First home visit.....	2.0
025	Home visit (11 p.m. to 8 a.m.).....	2.5
004	Home visit—each additional member, same household .....	.8
006	Follow-up office visit.....	1.0
021	Follow-up home visit.....	1.5
005	Mileage—per mile, one way, beyond radius of 10 miles, office or home.....	.2

TABLE 2

Procedure No.	Procedure	Relative Value		Your Conversion Factor	Fee (Nearest Even \$)
3261	Appendectomy	35	×	571%	\$200.00
4801	Classic Cesarean section..	50	×	571%	285.00
4318	Prostatectomy retropubic	70	×	571%	400.00
4613	Hysterectomy	50	×	571%	285.00
2992	Tonsillectomy	15	×	571%	86.00

TABLE 3

Procedure No.	Procedure	Relative Value		Your Conversion Factor	Fee
001	Office visit (first call—routine history and necessary examination)	2.0	×	400%	\$8.00
002	Hospital visit	1.0	×	400%	4.00
003	Home visit	2.0	×	400%	8.00
025	Home visit (11 p.m. to 8 a.m.)	2.5	×	400%	10.00
004	Home visit—each additional member, same household....	.8	×	400%	3.20
006	Follow-up office visit.....	1.0	×	400%	4.00
027	Consultation requiring complete examination, office, hospital or home..... (etcetera)	7.0	×	400%	28.00

TABLE 4

Procedure No.	Procedure	Relative Value	Your Factor	Fee	
8628	Complete blood count	1.0	×	500%	\$5.00
8636	Bone marrow, examination of material	3.0	×	500%	15.00
8658	Coagulation time (Lea & White) .....	.6	×	500%	3.00
8710	Prothrombin utilization	1.5	×	500%	7.50
8930	Urine — routine chemical qualitative .....	.2	×	500%	1.00
	(etcetera)				

428 per cent. Now let's test some of the other items on the schedule, using \$150 for an appendectomy as the base (see Table 5).

We must reiterate that the relative value study is actually four separate studies within the fields of Medicine, Surgery, Radiology and Pathology.

If the surgical values were to be established with a medical fee for a base, small adjustment in the medical fee would produce enormous change in the surgical fee (for example, see Table 6).

TABLE 5

Procedure	Insurance Company Indemnity	Relative Value		Factor	On Basis of Relative Values if Appendectomy Is \$150, Indemnity Should Be
Appendectomy	\$150.00	35	×	428%	\$150.00
Amputation of finger.....	37.50	12.5	×	428%	53.50
Simple mastectomy.....	150.00	30	×	428%	128.40
Laryngectomy	300.00	80	×	428%	342.40
Total gastrectomy	300.00	100	×	428%	428.00
Hemorrhoidectomy:					
External	37.50	5	×	428%	21.40
Internal	75.00	25	×	428%	107.00
Total hysterectomy.....	225.00	60	×	428%	256.80
Tonsillectomy	45.00	15	×	428%	64.20

TABLE 6

Procedure No.	Procedure	Relative Value	Fee	Fee	Fee	Fee
006	Follow-up office visit.....	1.0	\$ 3.00	\$ 4.00	\$ 5.00	\$ 6.00
2114	Total gastrectomy	100.0	300.00	400.00	500.00	600.00

TABLE 7.—Illustrating the injustice of across-the-board changes in fee schedules

	Fee Schedule	Required Overhead	Net to Physician	Decrease Fee 20 Per Cent	Net to Physician	Decrease in Net to Physician
Procedure X	\$25.00	50%	\$12.50	\$20.00	\$7.50	40%
Procedure Y.....	25.00	25%	18.75	20.00	13.75	26%

Each change of \$1.00 in the follow-up office visit produces a \$100.00 change in the surgical fee—if the medical procedure is used as the base to determine the surgical fee.

There are many other reasons for not relating fees in one section to those in another. One of them is the problem of varying overhead, of expense for equipment, materials, personnel and the like. If, for example, the C.P.S. \$4,200 income ceiling schedule were exactly 20 per cent lower than the \$6,000 schedule, across-the-board, great injustice would be done to those physicians who do procedures which result in a larger overhead (for example, see Table 7).

Each dollar taken off a gross fee comes out of the physician's net. In those procedures where the cost of providing the service is high, smaller reductions can be tolerated. A uniform fee reduction that might leave some profit for the surgeon may make it impossible for the medical man, radiologist or pathologist to exist.

For these and other good reasons, we recommend that the values established in each section of this study be related only within each of its four sections, and never between sections.

Recommendations of the Committee on Fees

Commission on Medical Services

The Committee on Fees recommends that the four schedules of relative values, relating medical services, surgical services, pathology and radiology be accepted at this time and that this study of relative values be furnished to the county medical societies, C.P.S. and other interested groups or persons so that they may utilize this study to evaluate the various existing fee schedules in use in their respective areas of interest.

The committee further recommends that any new schedules of fees or any changes in existing schedules be so arranged as to conform exactly to the format presented in this study.

The committee also strongly urges that the same coding system be utilized so that a uniform coding system and a uniform terminology can be developed for all existing schedules in California.

The committee further recommends that this be a continuing study and that at periodic intervals it be critically analyzed and necessary adjustments made.

FRANCIS J. COX, M. D.

Chairman, Committee on Fees

February 11, 1956.

Report on Use of Salk Vaccine

*Prepared by a special committee appointed by the
Council to consider the present status of Salk vaccine*

ON MAY 4, 1955, the Council of the California Medical Association issued a note expressing anxiety over the Salk vaccine and disapproval of the manner in which it had been introduced. The committee report herein presented was requested by the Council to formulate a statement of policy for the current use of poliomyelitis vaccine. Your committee unanimously subscribed to the following:

1. The vaccine employed in the spring of 1955 proved to have dangers which made it unsatisfactory for further use. These dangers were later shown to be implicit in the methods of manufacture and testing then recommended.

2. Methods of production and of safety testing have been repeatedly revised and refined to a point where safety is as nearly assured as it is likely to be in any similar virus vaccine—absolute safety being almost unattainable.

3. Experience with vaccine used in the spring and summer of 1955, whatever its relative safety, provides evidence of immunity response as determined by serologic studies and by decrease of paralytic disease in epidemic situations. This encourages the belief that a vaccine of this nature may prove to be effective.

4. Final evaluation of the protective effect of the vaccine now available must await the accumulation of sufficient evidence to indicate if increased safety has been accompanied by unimpaired antigenicity.

5. It is hoped that additional experience and surveillance will define the limitations of protection induced. Only thus may be determined the virtue of vaccines of this nature, the duration of immunity, the necessity of recall injections and finally to point the way toward better vaccines with improved antigenicity and unequivocal safety.

6. The committee recommends approval of the further use by physicians and health agencies of the present vaccine licensed and released under current standards.

SIDNEY J. ADLER, M.D.
ALBERT G. BOWER, M.D.
HAROLD K. FABER, M.D.
MALCOLM H. MERRILL, M.D.
EDWARD B. SHAW, M.D., *Chairman*

Executive Committee Minutes

Tentative Draft: Minutes of the 255th Meeting of the Executive Committee of the California Medical Association, Bohemian Club, San Francisco, January 24, 1956.

The meeting was called to order by Chairman Heron at 7:00 p.m., Tuesday, January 24, 1956, in the Directors' Room, Bohemian Club, San Francisco.

Roll Call:

Present were President Shipman, Council Chairman Lum, Executive Committee Chairman Heron, Secretary Daniels and Editor Wilbur.

A quorum present and acting.

Present by invitation were Doctors John R. Upton and DeWitt K. Burnham and Messrs. John Hunton and Howard Hassard.

1. Fresno Blood Banking Situation:

Discussion was held on the present blood banking situation in Fresno, where the nonprofit blood bank sponsored by the Fresno County Medical Society and financed by the California Medical Association is operating at a loss and a competing proprietary bank is continuing to serve about two-thirds of the blood needs of the area.

On motion duly made and seconded, it was voted to ask the members of the Executive Committee, together with the District Councilor of the area, to meet with officials of the Fresno County Medical Society, to determine whether or not the members in the area wish to support the society-sponsored blood bank.

2. Polio Vaccine:

Doctor Wilbur reported that the start of a new poliomyelitis season would bring a renewed demand for factual information on the vaccine available for inoculations. He suggested that a committee of five experts in this field be appointed, to produce a statement which could be published in the journal for the information of all members. On motion duly made and seconded, this suggestion was approved.

3. Committee on Rural and Community Health:

On motion duly made and seconded, it was voted to approve the attendance of Doctor Robb Smith, chairman of the Committee on Rural and Community Health, at the Rural Health Conference planned by the Council on Rural Health of the American Medical Association to be held in Portland, Oregon, March 8 to 10.

4. European Tour:

Mr. Hunton reported that two airlines were preparing conducted tours of European countries, in-

Proposed Constitutional Amendment

(Second Publication)

The following proposal was introduced at the 1955 Annual Session of the California Medical Association. It is to be acted upon at the 1956 session:

WHEREAS, a new corporation has been established called **PHYSICIANS' BENEVOLENCE FUND, INC.**, to administer the duties under Section 6 of Article IV of the Constitution of the California Medical Association; now, therefore, be it

Resolved: That Section 6 of Article IV of the Constitution which now reads:

"At least \$1.00 out of the annual dues paid by each active member of the Association shall be allocated to the Physicians' Benevolence Fund and shall only be used for the purposes as set forth in the By-Laws."

is hereby amended to read as follows:

"At least \$1.00 out of the annual dues paid by each active member of the Association shall be allocated to the Physicians' Benevolence Fund, Inc., a corporation, and shall be used for the purposes as set forth in that corporation's Articles and By-Laws."

cluding Russia, which they wished to offer to members of the Association. He asked if the complimentary tours, available at the rate of one tour for each twenty sold, might be used by science writers who might write stories on European medical care, or by others. It was agreed to secure details on the proposed tours and discuss the subject further at the next Council meeting.

5. Central Office Arrangements:

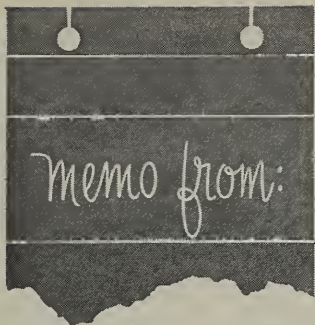
Mr. Hunton reported that for several years the office routine had called for only a skeleton staff on Saturdays, principally for the purpose of taking incoming telephone calls, and that there was practically no telephone business on these days. It was agreed that regular Saturday assignments might be dispensed with, provided a standby telephone service were provided to assist any members who might be calling.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 10:00 p.m.

IVAN C. HERON, M.D., *Chairman*

ALBERT C. DANIELS, M.D., *Secretary*



medical review

and advisory board

OF THE CALIFORNIA MEDICAL ASSOCIATION

Professional Witness— Medicine or Witchery

EDMUND D. LEONARD, *Attorney-at-Law, San Francisco*

IT IS WELL AT TIMES to consider simple, ordinary, everyday virtues, the existence of which we all take for granted but whose absence we sometimes ignore—such things as truth, integrity, dignity and self-respect. And it is well also to consider the effect that ignoring them may work upon us. Physicians as a group are endowed with a touch of immortality. They usher in newborn life and soften the grip of death. They are privileged during their lives to practice the art of healing and in the pursuit of this art are accorded privileges and accept obligations not shared by other men. To the extent that any of them squanders these privileges and abuses these obligations, he not only abases himself but does injury to worthy members of the medical profession.

It is axiomatic that only trained physicians can properly evaluate the causes, effects and cures of injury or disease. Frequently, detailed, discriminating and exact technical knowledge is required for determining whether a physical or mental ill effect is in fact attributable to the cause to which it is ascribed in litigation. Deciding whether impaired function is real or assumed, physiological or psychic, may require keen and experienced judgment. Training, research, experience and careful work form the bases of any expressed medical opinion. To the extent that any of these foundations are imperfect or incomplete, the validity of a medical opinion suffers.

The great majority of physicians to the best of their inherent abilities, training and opportunity to know the facts, give their professional opinions in litigated cases as best they can on the basis of the facts presented to them. The great majority of attorneys regard them most highly.

We can have no doubt that there are severe traumatic injuries which produce substantial disabilities, both objective and subjective in nature. Where the

facts and the law place responsibility to recompense or compensate for these disabilities, determination of liability requires medical opinion of the highest order, so that a just measure of monetary recovery be assured. In such cases the attending or the consulting physician has an undoubted obligation to testify fully as to all matters pertinent to a sound and therefore fair medical opinion.

It must be admitted that there are undoubtedly some physicians who customarily and repeatedly testify for defendants—physicians whose medical opinions are biased in favor of “protecting” the defendant. They are few, however, and their services are not sought; for defendants generally are those with money and good reputation which they cannot afford to jeopardize by inviting the fleeting help of venal opinion.

Of recent years, though, we have observed a great outcropping of sporadic medical brilliance among a rather considerable group of run-of-the-mill practitioners. Their articulate protestations of knowledge are usually in sharp contrast to their personal professional accomplishments. Their sudden ascension to positions of intellectual eminence has been accompanied by the great emphasis placed on evidence—in court or before commissions or boards hearing claims—which will visually and graphically demonstrate the nature and severity of injury, the heroic and difficult measures required in attempting to effect a cure, and the dire and disastrous effects which persist thereafter for life—this evidence all accompanied by the refrain of pain, pain, pain! These individuals participate in medical Mickey Spillanes being put on every trial day before many and varied tribunals. They exist by the maxim that injuries which are subject to monetary reward are incurable.

Despite all advances in medicine in the last half century, functional disabilities for which monetary rewards are sought have assumed the proportions of a plague. These are the decibel disabilities, where the volume of complaint is registered on a recording device scaled in dollars. The original virus of this

Address before the convention of Western Association of Railway Surgeons at Las Vegas, Nevada, September 24, 1955.

plague of functional disabilities appeared over half a century ago in the multitudinous suits against the railroads, which, as everyone knew, could well afford to pay. Shortly, though, this virus was transferred to a new medium—the mass ownership of automobiles. This medium was then enriched by the added factor of practically universal automobile insurance, and with this the virus has become most virulent. The plague now attacks any enterprise or activity in which injuries occur, the epidemiologic susceptibility being in direct proportion to the possibility of monetary recovery.

The plague is borne by two medico-legal Typhoid Marys. First, of course, there customarily is an attorney with a percentage fee contract. His monetary recovery is in direct proportion to his client's failure to recover medically. He alone cannot, however, spread the virus of this plague. He may only culture it. He needs a medical Trilby to sing his songs of disaster and torturing pain. Specifically, it is these medical Trilbys that I believe worthy of your attention and consideration. You should not only collectively but individually do something about them.

Where a physician time after time in case after case regardless of the nature and severity of injury speaks ominously of delayed or deferred disaster, of unbearable and unmitigated pain, of dire complications and heartrending disability, you have an unquestioned carrier of the plague. Only too often he is content to play Trilby for want of wit to set the score and tempo of a performance of his own—a sort of Monday-morning tremblechin quarterback, yelling, "Wasn't it awful." Or he may be some local ball of fire who has singed so many people he is on the outs and feels that he might as well do it right and blowtorch everyone.

Such witnesses are all experts on what has well been called the monetary syndrome, although it has special overtones and variations usually evident in a case where X or Y is the attorney; it may there be known as the X or Y syndrome. Basically it involves pain, headache, vertigo, nystagmus, hearing loss, blurred vision, disturbed sleep, mal-alignment of fractured bones, discogenic phenomena, abnormal electroencephalograms and, more recently, abnormal electromyograms. The recitation is most often accompanied by vivid and timely illustrations. The whole production gives more than a nostalgic reminder of the act of a medicine man and his accoutrements. The desired effect is too often the same—to sway ignorance through fear.

Whatever their professional, moral or psychic abnormalities, all of these medical mimes have one thing in common: They perform only for money. A good many of them set a rate commensurate with assured repeated booking; others take a small deposit and collect the balance only if there is a recov-

ery—monetary recovery, that is—while some few, more needy or more venturesome, operate completely on speculation along with the attorney.

Basically their task is to prove the inadequacies of medicine, of research, of standards, of practice, of treatment and of accomplishment. Would they get anywhere in their endeavors doing otherwise? Their continued "professional" life and livelihood depend on portraying medicine as a medieval torture process breaking human beings on its rack of callousness and ignorance. First having "proved" the extreme severity of the initial injuries, they "establish" the prolonged suffering that those injuries cause, which seems strange in the day of modern medication and analgesics. Wrenching pains of surgical procedures and their excruciating after-effects are next vividly and graphically portrayed, although the usual patient doesn't know whether he had an abdominal incision or a lumbar sympathectomy. After this, vociferous and "convincing" explanation and assurances of present and to-be-expected future pain are offered. Finally there is the dismal end fadeout of total disability and unemployability—just another piece of wreckage and agony from the mill of medicine.

These Trilbys have truly become modern witch doctors. They burn their fires and spread their incantations with a fervor and zeal that almost belie the prime monetary motivating force in their protestations. They spread the plague of the incurable nature of traumatic injuries where monetary complications set in. The most obvious direct effect of this is in automobile insurance, where the insurance cost often exceeds the total of all other operating costs. Many activities are similarly blighted. But there are important secondary effects of this plague on the medical profession. These flitting medical Trilbys live by imputing incompetence to wholly worthy practitioners of medicine. They are doing their utmost, probably unknowingly, to put in the mind of the general public an impression that ineptitude and unreliability are commonplace in the medical profession. They give aid and comfort to the healers who decry the medical profession. To them, more than to any other apparent phenomenon, can be ascribed the ever-increasing rash of malpractice actions, which have grown to such proportions that the modern physician feels often as did the healer at the court of the despotic monarch who demanded, "Heal me or lose all your worldly goods."

Truly, these medical Trilbys are witch doctors, but unlike the witch doctors of old who sought to assure the recovery of those to whom in fear they ministered, these fellows seek to convince everyone that patients haven't, won't and can't recover—medically speaking. How well they are succeeding can fairly well be gauged in the increase in malpractice insurance rates.

Lyell Cary Kinney, M. D.

DR. LYELL CARY KINNEY was born in Wisconsin on September 5, 1884, and died from injuries received in a traffic accident on February 1, 1956. He received his Bachelor of Science degree from the University of Chicago in 1905 and his Doctor of Medicine degree from the University of Pennsylvania in 1908. He interned at the German Hospital in Philadelphia, Pennsylvania, from 1909 to 1911, and had surgical residency under John B. Deaver.

In 1911, Dr. Kinney came to California and joined the staff of the Moore-White-Moore Clinic in Los Angeles as radiologist. At that time, he was also instructor in radiology at the University of Southern California. Four years later, in 1915, Dr. Kinney replaced Dr. W. W. Austin as the only radiologist in San Diego County and began his practice at Fourth and Elm streets in San Diego. During the first World War, he served with the United States Navy and was retired with the rank of commander. In 1924, Dr. Kinney began an association with Dr. Addison Elliott which lasted for ten years until Dr. Elliott's death in 1934. Until his semi-retirement, he was associated with Dr. J. W. Olds, Dr. R. F. Niehaus, Dr. J. B. Irwin, Dr. S. A. Moore and Dr. D. J. Sayles. Before his death, he was engaged in diagnostic x-ray work at Palomar Hospital and at the Graybill Clinic in Escondido.

Among Dr. Kinney's many activities were his presidency of the San Diego County Medical Society

in 1920, presidency of the California Medical Association ten years later, and long service on the Council of the Association. He initiated formation of the California Cancer Commission in 1931, under jurisdiction of the California Medical Association, and was a member of the Commission from 1944 to 1948. During this time he was also a director of the American Cancer Society and played an important part in establishing that organization's California Division. On June 16, 1954, the society presented him with a plaque for his years of faithful service.

Dr. Kinney was a charter member of the American Board of Radiology, formed about 1930, a life member of the American College of Physicians, Fellow of the American College of Radiology, member of the American Roentgen Ray Society and its president in 1944, and member of the Radiological Society of North America.

An indefatigable worker, he accomplished a great deal in his own field of radiology, as well as in forwarding the progress of cancer research. Perhaps a paragraph from a letter written by Mr. Allen E. Kolb, executive vice-president of the California Division, American Cancer Society, best expresses the feeling of all those who knew Dr. Kinney: "I still am shocked, as I know you must be too, by Dr. Kinney's death. He was one of the greatest human beings I ever knew, and I am sure none of us will ever forget him."

CLARENCE E. REES, M.D.

In Memoriam

AVERY, WALTER JAMES. Died in Fresno, January 5, 1956, aged 69, of heart disease. Graduate of St. Louis University School of Medicine, Missouri, 1916. Licensed in California in 1919. Doctor Avery was a member of the Fresno County Medical Society, a life member of the California Medical Association, and an associate member of the American Medical Association.



BERGE, FRITJOF E. (F. EML). Died in Los Angeles, January 11, 1956, aged 88. Graduate of the University of Michigan Medical School, Ann Arbor, 1894. Licensed in California in 1915. Doctor Berge was a retired member of the Los Angeles County Medical Association, the California Medical Association, and an associate member of the American Medical Association.



BINE, RENE. Died in San Francisco, February 14, 1956, aged 73, of carcinoma of the stomach. Graduate of the University of California Medical School, Berkeley-San Francisco, 1903. Licensed in California in 1904. Doctor Bine was a retired member of the San Francisco Medical Society, the California Medical Association, and an associate member of the American Medical Association.

EILERS, HARRISON. Died in San Luis Obispo, January 8, 1956, aged 49, of arteriosclerotic heart disease with acute coronary insufficiency. Graduate of the University of Kansas School of Medicine, Lawrence-Kansas City, 1934. Licensed in California in 1941. Doctor Eilers was a member of the San Luis Obispo County Medical Society.



JONES, JOHN ROBERT. Died in Berkeley, January 18, 1956, aged 37, of chronic glomerulonephritis. Graduate of McGill University, Faculty of Medicine, Montreal, Canada, 1943. Licensed in California in 1950. Dr. Jones was a member of the Alameda-Contra Costa Medical Association.



KELLEY, THOMAS J. Died in Santa Cruz, January 17, 1956, aged 67, of heart disease. Graduate of St. Louis University School of Medicine, Missouri, 1941. Licensed in California in 1942. Doctor Kelley was a member of the Santa Cruz County Medical Society.



KING, EDWARD D. Died in North Hollywood, January 15, 1956, aged 67. Graduate of the University of Cincinnati Col-

lege of Medicine, Ohio, 1912. Licensed in California in 1945. Doctor King was a member of the Los Angeles County Medical Association.



KINNEY, LYEELL CARY. Died in Del Mar, February 1, 1956, aged 72, from injuries received when struck by an automobile. Graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1908. Licensed in California in 1911. Doctor Kinney was a member of the San Diego County Medical Society.



LEHMANN, WERNER. Died in Coronado, January 20, 1956, aged 42. Graduate of Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1937. Licensed in California in 1947. Doctor Lehmann was a member of the San Diego County Medical Society.



MENTZER, MARY JONES. Died September 8, 1955, aged 76, of intestinal cancer. Graduate of Woman's Medical College of Pennsylvania, Philadelphia, 1905. Licensed in California in 1912. Doctor Mentzer was a retired member of the San Francisco Medical Society, the California Medical Association, and an associate member of the American Medical Association.



PETERSON, ALBERT ALONZO. Died January 15, 1956, aged 81. Graduate of Jefferson Medical College of Philadelphia, Pennsylvania, 1901. Licensed in California in 1927. Doctor

Peterson was a retired member of the Los Angeles County Medical Association, the California Medical Association, and an associate member of the American Medical Association.



ROSS, ALMON BARTLETT. Died in Los Angeles, January 16, 1956, aged 74. Graduate of Cooper Medical College, San Francisco, 1907. Licensed in California in 1907. Doctor Ross was a member of the Los Angeles County Medical Association.



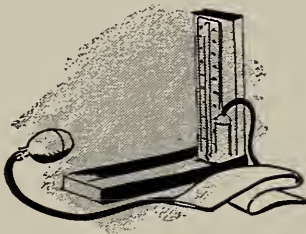
SARTORI, HENRY J. Died in San Francisco, February 7, 1956, aged 85. Graduate of Cooper Medical College, San Francisco, 1893. Licensed in California in 1894. Doctor Sartori was a retired member of the San Francisco Medical Society, the California Medical Association, and an associate member of the American Medical Association.



WALLACH, ISADOR ARTHUR. Died in Los Angeles, January 28, 1956, aged 53, of heart disease. Graduate of Ohio State University College of Medicine, Columbus, 1928. Licensed in California in 1929. Doctor Wallach was a member of the Los Angeles County Medical Association.



WALSHE, JOSEPH A. Died in Los Angeles, January 17, 1956, aged 48. Graduate of St. Louis University School of Medicine, Missouri, 1937. Licensed in California in 1939. Doctor Walshe was a member of the Los Angeles County Medical Association.





WOMAN'S AUXILIARY

TO THE CALIFORNIA MEDICAL ASSOCIATION

Our Work in the Blood Banks

The miracle of having life-saving whole blood and plasma readily available for medical use has become so commonplace that few of us stop to think about all that lies behind it. This miracle did not just "happen" like those in the story books, it came about because of the vision and hard work of many dedicated men and women.

Members of the California Medical Association have been responsible perhaps more than any other single group for this miracle; they have pioneered and contributed greatly in the field of community blood banks. Other groups have joined in the effort, too—and not the least among these has been your Woman's Auxiliary, many of whose members have done much to bring about and maintain the present excellent system of C.M.A.-sponsored blood banks in California.

From Small Beginnings . . .

The first nonprofit, medically sponsored, community blood bank in the United States opened its doors in the basement of the old Irwin mansion in San Francisco in June of 1941. It was conceived of, sponsored and operated by members of the San Francisco Medical Society. Its original volunteer program was sponsored and set into motion by the San Francisco Woman's Auxiliary. At that time, blood was supplied by about 200 donors a month and was used by local civilian hospitals as well as by British ships and bases.

With the coming of World War II, the Blood Bank made its products available to the military, and the importance of its existence took on a new and great significance. The number of donors jumped to over 700 a week. So many volunteers were needed on the staff that the San Francisco Woman's Auxiliary could no longer handle the job alone and other community groups came in to help out.

During World War II there was a further development of blood banks throughout California, which resulted in their phenomenal use and growth. Hundreds of thousands of units of blood were processed for the military. During this period, your State Auxiliary added blood bank activities to its formal roster of projects, and members all over the state gave of their time and effort.

Peacetime Volunteer Activities

The coming of peace saw the change-over in blood banks from military to exclusively civilian function.

However, during the Korean War many banks participated in the Defense Blood Program and the bank in San Francisco alone accounted for 169,632 units of whole blood in a little less than three years. Volunteer work was needed accordingly, and many Auxiliary members participated.

How the present network of 12 C.M.A.-sponsored blood banks operates throughout California—and reciprocates with other out-of-state blood banks all over the country—need not be described here. It should be pointed out, however, that ten of the twelve utilize volunteers, and the low cost per unit of blood is due in good measure to the services of these volunteers.

At present, there is no longer a formal program of blood bank activities in the State Auxiliary, but county auxiliaries all over the state stress the importance of blood bank work to their members. Hundreds of physicians' wives are serving in their local community blood banks. It is noteworthy that several Auxiliary members who were original volunteers at the first blood bank in San Francisco are still giving loyal service there.

How Volunteers Help

There are several different types of volunteer work which Auxiliary members may do. They may act as couriers, transporting the blood by car from the blood bank to local hospitals or to depots for shipment elsewhere. They may staff the canteen, providing refreshments for donors and other workers. They may assist the nurses in "prepping" the donors and in the actual taking of blood. They may help with preparation of sterile dressings, etc., or they may staff the appointment desk and do other clerical duties.

All of this work is vital to the smooth and efficient functioning of a blood bank, and it carries real responsibility. Volunteers must know their jobs, and to this end they receive careful instructions and training.

Working in local blood banks is one other aspect of your Auxiliary's total effort to serve well in the community. But blood bank volunteers feel that this work holds a special reward: It provides one of the closest ways of working first-hand with the medical profession in the great task of saving human lives.

CALIFORNIA MEDICAL ASSOCIATION
announces the
1956 ANNUAL SESSION

AMBASSADOR HOTEL, LOS ANGELES

APRIL 29—MAY 2, 1956

Registration daily, 9 a.m. to 5 p.m. • No Registration Fee

See Program Following Page 228, This Issue

Banquet honoring the President

APRIL 30, 1956

House of Delegates

will meet

SUNDAY, APRIL 29, and WEDNESDAY, MAY 2, 1956

In The Ambassador Hotel

- *Members should bring membership cards for identification.*
- Non-member physicians will be registered upon proper identification.
- Nurses, technicians, medical students and office assistants will be registered upon identification from employing physicians, medical schools, etc.
- Pharmacist mates and other military personnel of like grade will be admitted upon presentation of a letter requesting their admittance, written by their commanding officer.
- Dentists (D.D.S.), doctors of veterinary medicine (D.V.M.), dietitians and allied public health personnel will be registered upon proper identification.

4 DAYS OF SCIENTIFIC MEETINGS • TECHNICAL EXHIBITS
SCIENTIFIC EXHIBITS • MEDICAL MOTION PICTURES
TELEVISION

NEWS & NOTES

NATIONAL • STATE • COUNTY

FRESNO

The Valley Children's Hospital and Guidance Clinic will hold its second Annual Spring Clinics in Fresno, April 27 and 28. The registration fee is \$15 for the two-day session. The guest speakers will be Dr. Horace L. Hodes of New York and Dr. Edward B. D. Neuhauser of Boston.

LOS ANGELES

A number of medical organizations have scheduled scientific or social meetings to be held immediately before or concurrently with the annual meeting of the California Medical Association which is to be held in Los Angeles, April 29 to May 2:

SATURDAY, APRIL 28

American College of Chest Physicians (California Chapter)

Scientific sessions, 9 a.m. to 5 p.m. Luncheon at noon. Ambassador Hotel.

Western Industrial Medical Association

Scientific sessions, 8:15 a.m. to 5 p.m. West Venetian Room, Ambassador Hotel. Physicians, nurses, management, legal profession and others interested are invited.

SUNDAY, APRIL 29

California Society of Allergy

Reception and dinner, 7 p.m., Beverly Hilton Hotel, Beverly Hills. Reservations must be made before April 23. Contact Dr. Elizabeth Sirmay, 133 South Lasky Drive, Beverly Hills. (See also, luncheon, April 30.)

California Society of Orthopedic Surgeons

Luncheon, Dolphin Court, 12:15 p.m.

California Society of Pathologists

Dinner, Colonial Room, Ambassador Hotel, 7 p.m. For reservations contact Ernest Simard, M.D., secretary-treasurer, 708 Cass Street, Monterey.

MONDAY, APRIL 30

California Alumni-Medical Faculty

Luncheon, Lido Patio, Ambassador Hotel, 12:15 p.m.

California Society of Allergy

Luncheon, Regency Room, Ambassador Hotel, 12:15 p.m.

TUESDAY, MAY 1

California Chapter, American Academy of Pediatrics

Dinner, West Venetian Room, 7 p.m.

* * *

Dr. Wilbur Bailey, Los Angeles, was elected to the presidency of the American College of Radiology at the recent annual meeting of the organization in Chicago. He succeeds Dr. Warren W. Furey, and his presidency follows a year as chairman of the College's Board of Chancellors.

Appointment of Dr. Edward J. Stainbrook of Syracuse, N. Y., as professor and head of the department of Psychiatry in the University of Southern California School of Medicine, effective July 1, was announced recently by Fred D. Fagg, Jr., president of the university. Dr. Stainbrook is at present professor and chairman of the department of psychiatry at the College of Medicine of the State University of New York at Syracuse.

* * *

The Medical Library Association will hold its 55th annual meeting June 18 to 22 at the Hotel Statler in Los Angeles. Further information can be obtained from Mrs. Ella Crandall, librarian, Los Angeles County General Hospital, 1200 North State Street, Los Angeles 33.

SAN FRANCISCO

Dr. Lot D. Howard, Jr., of San Francisco was installed as president of the American Society for Surgery of the Hand at the 11th annual meeting in Chicago, January 27, and Dr. J. Edward Flynn of Boston was elected president-elect. Dr. Joseph H. Boyes, Los Angeles, was elected a member of the council.

* * *

The San Francisco Academy of General Practice will sponsor a Postgraduate Course in Medicine at the Veterans Administration Hospital, Fort Miley, beginning April 24 and each Tuesday evening thereafter, from 8 to 10 p.m., for a period of six weeks.

Forrest M. Willett, M.D., chief of medicine at the Fort Miley Hospital and associate professor of medicine, Stanford University School of Medicine, will be moderator.

All physicians, residents and interns are invited. Attendance will give 12 units in category I for all members of the Academy of General Practice.

* * *

Dr. Charles E. Smith, dean of the School of Public Health of the University of California, and Dr. Karl F. Meyer, director emeritus of the Hooper Foundation at U. C. Medical Center in San Francisco, recently were appointed to the National Advisory Allergy and Infectious Disease Council by U. S. Surgeon General Leonard Scheele. The twelve-man council will advise the new National Institute of Allergy and Infectious Diseases, which formerly was the National Microbiological Institute. Research grants will be awarded on the advice of the council.

* * *

Dr. Herman E. Hilleboe, commissioner of the New York State Department of Health, will be keynote speaker at the annual meeting of the California Tuberculosis and Health Association to be held in San Francisco April 5 to 7, the association announced. The three-day meeting at the Sheraton-Palace is expected to draw some 800 delegates from the medical and nursing professions welfare, rehabilitation and allied official agencies and volunteer groups, the association's announcement said.

GENERAL

The 22nd annual meeting of the American College of Chest Physicians will be held at the Hotel Sherman, Chicago, Illinois, June 6 to 10. Examinations for Fellowship in the College will be held on Thursday, June 7.

Copies of the program may be obtained by writing to the executive offices, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

The **Intermountain Pediatric Society** will hold its annual convention in Sun Valley, Idaho, June 7, 8, 9. Guest speakers will include: Drs. Douglas N. Buchanan, Chicago; Amos U. Christie, Nashville; William L. Hewitt, Los Angeles; Horace L. Hodes, New York City, and Edith L. Potter, Chicago. The meeting is open to all physicians.

* * *

The annual meeting of the **Aero Medical Association** will be held at the Drake Hotel, Chicago, on April 16, 17 and 18. All members of the profession are cordially invited to attend any or all of these sessions.

* * *

For the first time, the Cine Club of Cannes, France, is organizing an International Amateur Film Festival especially for 16 mm. **medical and surgical films**. It will be held from May 20 to May 25, 1956, according to recent announcement by the motion picture division of the Photographic Society of America. A list of national and international awards awaits the participants. To be entered, films should be sent prepaid to: Comite d'Organisation du Festival International du Film Medico-Chirurgical d'Enseignement et de Prevention Sanitaire, Palais des Festivals, La Croisette, Cannes, France. They should reach Cannes on or before May 12, 1956.

Further details and entry blanks may be obtained from: Ernst Wildi, 335 First Street, Palisades Park, N. J.

* * *

Medical Student Research Fellowships, available to medical schools throughout the United States and Canada, are now being offered for the current year by Lederle Laboratories Division, American Cyanamid Company. The Fellowships, not exceeding \$600 for any one individual, are intended to relieve some of the financial burden of students who desire to devote their summer vacations to basic research in the preclinical medical sciences.

Selection of students to receive the award will be made by the dean of the medical school or his selection committee. Students who apply must be of good scholastic standing and have the consent of the faculty member under whose supervision their research is to be conducted. Such research may be carried on in another medical school—if arrangements are satisfactory to faculty authorities in both schools.

* * *

The **Schering Award** to encourage medical research and the communication of knowledge has begun its eleventh annual program for medical students in the United States and Canada.

Students are invited to participate by selecting one of three suggested subjects and submitting papers to the Schering Award Committee, Bloomfield, N. J. Both a \$500 first prize and \$250 second prize are offered for each of the three subjects.

The three subjects for 1956, announced by C. J. Szmaj, M.D., chairman of the Schering Award Committee, are: (1) The Clinical Use of Adrenocortical Steroids in Collagen Diseases; (2) Metabolic Aspects of the Aging Process; (3) New Applications of Antihistamines in Medicine and Surgery.

Literature and entry forms are being distributed in medical schools, according to the official announcement.

POSTGRADUATE EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education assemblies and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Assistant Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

In Los Angeles:

Surgical Anatomy of Abdomen, Thorax and Pelvis. April 24-May 29. Fifteen hours. Fee: \$125.00.

Surgery of Trauma. March 29-30.*

Dermatology, 1956. June 22-23.*

Laboratory Technician Symposium. June 23-24.*

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Bedside Cardiology, March 19 to 23. Limited Enrollment. Fee: \$100.00.

Clinical Electrocardiography, March 19 to 23. Fee: \$50.00.

Conference on Pain, March 22. Nine hours. Fee: \$15.00.

Ophthalmological Conference on Glaucoma. March 22-23. Twelve hours. Fee: \$50.00.

Symposium on Proctology, April 7. Seven hours. Fee: \$20.00.

Office Urology, April 8. Seven hours. Fee: \$20.00.

Plastic Surgery, May 18.*

Peripheral Vascular Surgery, May 19.*

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrorse 4-3600, Ext. 665.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Surgical Planing. April 26, 27, 28. Twelve hours. Fee: \$35.00.

Anesthesia. Full time for three months. Opening every three months. Fee: \$300.00.

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. Residents admitted without fee. Tuition for all other physicians: \$30.00. (Each session all-inclusive.)

Contact: Phil R. Manning M.D., Director of Medical Extension Education, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

Anesthesiology. Daily, full-time, four months, beginning each four months. Fee: \$300.

Gynecology, Wednesdays, March 21 to May 23. Ten hours. Fee: \$30.00.

* Fees to be announced.

Operative Surgery, Wednesdays, March 21 to June 6.
Thirty hours: Fee: \$200.00.

Thoracic Surgery, Wednesdays, April 18 to May 9. Eight
hours. Fee: \$30.00.

Diseases and Injuries of Bones and Joints, Daily, July 2 to
July 31. Full time. Fee: \$100.00.

Contact: Chairman, Section on Graduate and Postgraduate
Medicine, College of Medical Evangelists, 1720
Brooklyn Ave., Los Angeles 33. ANgelus 9-9131, Ext. 205.

STANFORD UNIVERSITY

Monday Morning Clinical Conferences, Room 515.

Contact: D. H. Pischel, M.D., Professor, Division of
Ophthalmology, Stanford University School of Medicine.

Postgraduate Conference in Otorhinolaryngology, March
26 to 30. Fee: \$100.00.

Postgraduate Conference in Ophthalmology, March 19 to
23. Fee: \$100.00.

Postgraduate Conference in Practical Pediatric Dermatol-
ogy. March 23-24. Fee: \$50.00.

Contact: Office of the Dean, Stanford University School of
Medicine, 2398 Sacramento Street, San Francisco 15.
WEst 1-8000.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE INSTITUTES

NORTH COAST COUNTIES in association with University of
California School of Medicine, San Francisco, April 5
and 6, Veterans Memorial Auditorium, Santa Rosa.

SAN JOAQUIN VALLEY COUNTIES in association with the
University of California School of Medicine, Los An-
geles, May 10 and 11, Hacienda, Fresno.

SACRAMENTO VALLEY COUNTIES in association with Stan-
ford University School of Medicine, June 20, 21, 22,
Cal-Neva Lodge, Lake Tahoe.

Contact: C. A. Broadus, M.D., Director of Postgraduate
Activities, P.O. Box A-1, Carmel, California, or Mrs.
Margaret H. Griffith, Assistant Director, Postgraduate
Activities, California Medical Association, 417 So. Hill
St., Los Angeles 13.

POSTGRADUATE CIRCUIT COURSES

NORTH COAST CIRCUIT:

Eureka—Mondays, April 16, 23, May 14, 21.

Ukiah—Tuesdays, April 17, 24, May 15, 22.

Woodland—Wednesdays, April 18, 25, May 16, 23.

Napa—Thursdays, April 19, 26, May 17, 24.

SACRAMENTO VALLEY CIRCUIT:

Dunsmuir—Mondays, April 16, 23, May 14, 21.

Chico—Tuesdays, April 17, 24, May 15, 22.

Marysville—Wednesdays, April 18, 25, May 16, 23.

Auburn—Thursdays, April 19, 26, May 17, 24.

Medical Dates Bulletin

MARCH MEETINGS

LAENNEC SOCIETY scientific and dinner meeting each fourth
Friday, 6:30 p.m., Alexander Hamilton Hotel, San Fran-
cisco. For all physicians interested in Chest Diseases.

Contact: E. P. Von Allmen, secretary-treasurer.

CANCER COMMISSION, California Medical Association, Can-
cer Conference for Kern County Medical Society. March
20, 3:00 p.m., Bakersfield.†

MEDICAL ALUMNI COMMITTEE OF CHILDREN'S HOSPITAL,
San Francisco, March 17.* Morning: Dermatology.
Afternoon: Nutritional problems peculiar to modern
pediatrics.

SOUTHWESTERN PEDIATRIC SOCIETY spring meeting, March
20-21, Statler Hotel, Los Angeles.

Contact: Wendell M. Redfern, M.D., 125 East Glenoaks
Blvd., Glendale 7, or Harry O. Ryan, M.D., 149 North
El Molino, Pasadena 4.

CONTRA COSTA COUNTY HEART ASSOCIATION Postgraduate
Series, March 26, April 2, April 9, Contra Costa County
Hospital, Alhambra at B St., Martinez. Fee: \$3.50 per
single lecture.

Contact: Mrs. Loyse C. Casebolt, executive director, Contra
Costa County Heart Association, 2363 Mt. Diablo Blvd.,
Walnut Creek.

LONG BEACH HEART ASSOCIATION Class in Home Organiza-
tion and Management (for Cardiacs). Continuously by
semesters. West Adult Education Center, cosponsored
by Long Beach Board of Education.

Contact: Leslie R. Raymond, executive director.

CANCER COMMISSION, California Medical Association, Can-
cer Conference for Marin County Medical Society,
March 22, 7:00 p.m., Meadow Club, Fairfax.†

SOUTHERN CALIFORNIA DIVISION AND THE NORTHERN CALI-
FORNIA CHAPTER OF THE UNITED STATES SECTION OF THE
INTERNATIONAL COLLEGE OF SURGEONS Regional Meeting,
St. Claire Hotel, San Jose, March 22, 23.

Contact: Carmelo C. Celestre, M.D., secretary, Northern
California Chapter, 1686 Union St., San Francisco 23, or
Ross V. Parks, secretary, Southern California Division,
1930 Wilshire Blvd., Los Angeles 57.

APRIL MEETINGS

CANCER COMMISSION, California Medical Association, Can-
cer Conference for Orange County Medical Society, April
4, Santa Ana.*

CALIFORNIA TUBERCULOSIS AND HEALTH ASSOCIATION, Cali-
fornia Trudeau Society and California Sanatorium Asso-
ciation Annual Meeting, Sheraton-Palace Hotel, San
Francisco, April 5, 6, 7.

Contact: E. L. Daggett, director, Public Relations, Cali-
fornia Tuberculosis and Health Association, 130 Hayes
Street, San Francisco 2.

CANCER COMMISSION, California Medical Association, Can-
cer Conference for Fresno County Medical Society.
April 10, 7:00 p.m., Sunnyside Country Club, Fresno.†

CANCER COMMISSION, California Medical Association, Can-
cer Conference for Ventura County Medical Society,
Colonial Inn, Oxnard, April 10.†

CANCER COMMISSION, California Medical Association, Can-
cer Conference for Napa County Medical Society, April
11, Napa.†

*For registration or information, contact: Gertrude Jones,
M.D., Children's Hospital, San Francisco.

†Contact: Walter E. Batchelder, M.D., Medical Director,
Cancer Commission, 467 O'Farrell Street, San Francisco.

ST. MARY'S HOSPITAL Clinical Day, April 12. Morning and afternoon panels and Annual Memorial Dinner of St. Mary's Hospital. Guest speaker, William Boyd, M.D., professor of the History of Medicine, University of Toronto. Open to the medical profession.

Contact: Frank A. Solomon, Jr., M.D., 2107 Van Ness Ave., San Francisco 9.

CITY OF HOPE Postgraduate Course in Recent Advances in Hematology, April 12, 13, City of Hope Medical Center, Duarte, under direction of Howard Bierman, M.D. Fee: \$15.00 per day or \$25.00 for the two days.

Contact: Leo G. Rigler, director, Division of Postgraduate Medical Education, City of Hope Medical Center, Duarte.

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION, 14th annual meeting, Calexico (California) and Mexicali (Baja California), April 13 to 16.

Contact: Sidney B. Clark, M.D., secretary, 204 U. S. Court House, El Paso, Texas, or Donald G. Davy, M.D., assistant chief, Division of Local Health Service, 2151 Berkeley Way, Berkeley 4.

MEDICAL ALUMNI COMMITTEE OF CHILDREN'S HOSPITAL, San Francisco, April 14.* Behavior Problems and Childhood Psychiatry.

AMERICAN COLLEGE OF PHYSICIANS 37TH ANNUAL SESSION, Los Angeles, April 16-20.

Contact: George C. Griffith, M.D., General Chairman, Box 25, 1200 N. State St., Los Angeles 33.

CANCER COMMISSION, California Medical Association Cancer Conference for San Luis Obispo County Medical Society, April 21, 6:30 p.m. Dinner, San Luis Obispo.†

VALLEY CHILDREN'S HOSPITAL ANNUAL SPRING CLINICS, April 27 and 28, 9 a.m., Roosevelt High School Auditorium, Fresno. Fee: \$15.00.

WESTERN INDUSTRIAL MEDICAL ASSOCIATION annual meeting, all day, April 28, Ambassador Hotel, Los Angeles.

Contact: Edward Zaik, M.D., secretary, 740 South Olive Street, Los Angeles 14.

HAWAII MEDICAL ASSOCIATION Centennial Celebration. Scientific sessions, historical pageant of 100 years of medicine in Hawaii, social festivities, etc., Honolulu, April 22 to 29.

Contact: Hawaii Medical Association, 510 S. Beretania Street, Honolulu 13, Hawaii.

CALIFORNIA MEDICAL ASSOCIATION ANNUAL MEETING, celebrating 100th Anniversary, Ambassador Hotel, Los Angeles, April 29 to May 2.

Contact: John Hunton, Executive Secretary, 450 Sutter St., San Francisco 8, or Ed Clancy, Director of Public Relations, 417 S. Hill St., Los Angeles 13.

WESTERN SECTION, AMERICAN UROLOGICAL ASSOCIATION, April 30 to May 3, Sheraton-Palace Hotel, San Francisco.

Contact: James Ownby, Jr., M.D., 516 Sutter St., San Francisco.

MAY MEETINGS

CALIFORNIA SOCIETY OF ANESTHESIOLOGISTS, INC., Annual Meeting, May 2, 1:00 p.m., Grove Lounge, Ambassador Hotel, Los Angeles.

Contact: Francis E. Guinney, M.D., secretary, 2790 Monte Mar Terrace, Los Angeles 64, or telephone DUnkirk 7-4236.

NEW MEXICO MEDICAL SOCIETY annual session, Roswell, New Mexico, May 2 to 4.

Contact: Ralph R. Marshall, executive secretary, 223-24 First National Bank, Albuquerque, N. M.

CALIFORNIA HEART ASSOCIATION ANNUAL MEETING AND SCIENTIFIC SESSION, La Playa Hotel, Carmel, May 18 to 20.

Contact: Alan Croft Blanchard, field director, California Heart Association, 1428 Bush Street, San Francisco 9.

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION 23rd Annual Meeting, Hotel Utah, Salt Lake City, Utah, May 30 to June 2.

Contact: Mrs. L. Amy Darter, secretary-treasurer, at State Public Health, 2151 Berkeley Way, Berkeley 4, California.

SUMMER AND FALL MEETINGS

LA MESA COMMUNITY HOSPITAL Clinical Session, "Civilian Defense, Radioactive Fallout, and Decontamination of Casualties—both immediate and late care," June 15 to 23, Tripler General Hospital, Honolulu, Hawaii. Chartered plane to leave International Airport. Total cost, including meals, hotel, etc., \$360.00 plus tax.

Contact: John H. Corby, administrator, La Mesa Community Hospital, 8665 La Mesa Blvd., La Mesa.

IDAHO STATE MEDICAL ASSOCIATION annual meeting, June 17-20, Sun Valley, Idaho.

Contact: Armand L. Bird, executive secretary, Idaho State Medical Association, 364 Sonna Building, Boise, Idaho.

COLORADO DIVISION OF THE AMERICAN CANCER SOCIETY 10th annual Rocky Mountain Cancer Conference, Shirley-Savoy Hotel, Denver, Colorado, July 11 and 12.

Contact: John S. Bouslog, M.D., 835 Republic Building, Denver 2, Colorado.

ST. JOHN'S HOSPITAL Postgraduate Assembly, September 10, 11, 12, 9 a.m. to 4 p.m. and 8 to 9 p.m. Elks Club, Santa Monica.

Contact: John C. Eagan, M.D., director, 1245 Glendon Ave., Los Angeles 24.

SAN DIEGO COUNTY GENERAL HOSPITAL TENTH ANNUAL POSTGRADUATE ASSEMBLY, September 19-20.

Contact: Howard B. Kirtland, Sr., M.D., Chairman, Postgraduate Committee, 3505 Fourth Avenue, San Diego 3.

CALIFORNIA SOCIETY OF INTERNAL MEDICINE ANNUAL MEETING, September 29, La Playa Hotel, Carmel.

Contact: Mrs. Mildred B. Coleman, Assistant Secretary, Room 515, 384 Post Street, San Francisco 8.

SAN FRANCISCO HEART ASSOCIATION Annual Postgraduate Symposium, October, 1956, St. Francis Hotel, San Francisco.

Contact: Executive director, 604 Mission St., San Francisco.

LOS ANGELES COUNTY HEART ASSOCIATION 26th Annual Symposium on Heart Disease, Wilshire-Ebell Theatre, 4401 West 8th St., Los Angeles, October 10 and 11.

Contact: Robert A. Pike, executive director, Los Angeles County Heart Association, 316 South Bonnie Brae, Los Angeles 57 or telephone DUnkirk 8-4127.

CALIFORNIA ACADEMY OF GENERAL PRACTICE 8th Annual Scientific Assembly, Hotel Statler, Los Angeles, October 14, 15, 16, 17.

Contact: William W. Rogers, executive secretary, California Academy of General Practice, 461 Market St., San Francisco.

APPLICATION
FOR HOUSING
ACCOMMODATIONS

FOR YOUR CONVENIENCE in making hotel reservations for the coming meeting of the California Medical Association, April 29-May 2, 1956, Los Angeles, hotels and their rates are at the right. Use the form at the bottom of this page, indicating your first and second choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. All requests for reservations must give definite date and hour of arrival as well as definite date and approximate hour of departure; also names and addresses of all occupants of hotel rooms must be included.

Eighty-fifth Annual Session
CALIFORNIA MEDICAL ASSOCIATION
Los Angeles, California
APRIL 29-MAY 2, 1956

HOTEL ROOM RATES *

Table with 5 columns: Hotel Name, Single, Double, Twin Beds, Suites. Rows include Ambassador Hotel, Chapman Park Hotel, The Gaylord Hotel, Hotel Chancellor, and Mayan Hotel with their respective room rates.

ALL RESERVATIONS MUST BE
RECEIVED BEFORE: APRIL 1, 1956

*The above quoted rates are existing rates but are subject to any change which may be made in the future.

CALIFORNIA MEDICAL ASSOCIATION
450 Sutter Street—Room 2000
San Francisco 8, California
Please reserve the following accommodations for the 85th Annual Session of the California Medical Association, in Los Angeles, April 29-May 2, 1956.

Single Room \$..... Double Bedded Room \$..... Twin Bedded Room \$.....
Small Suite \$..... Large Suite \$..... Other Type of Room \$.....
First Choice Hotel..... Second Choice Hotel.....

ARRIVING AT HOTEL (date)..... Hour:..... A.M..... P.M. (Hotel reservations will be held until
Leaving (date)..... Hour:..... A.M..... P.M. (6:00 P.M., unless otherwise notified

THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names of both persons for each double room or twin bedded room requested. Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

.....
.....
.....
.....

Individual Requesting Reservations—Please print or type Delegate?..... Alternate?.....
Name..... County.....
Address..... City and State.....

C.M.A. Cancer Commission Pre-Convention Conference

LOS ANGELES—SATURDAY, APRIL 28

Radiology

Regency Room, Ambassador Hotel

Chairman.....John R. Bryan, M.D., San Francisco
Secretary.....Roy B. Weathered, M.D., Los Angeles

DIAGNOSTIC SESSION—9:30 a.m. to noon

Twelve diagnostic cases with histories and films will be presented. These cases have been selected to illustrate specific problems in the radiological and clinical diagnosis of cancer. Audience participation and discussion will be encouraged.

THERAPY SESSION—2:00 p.m. to 4:30 p.m.

Five cases illustrating specific therapy problems will be presented. Audience participation will be encouraged.

Both of these sessions are open to all physicians and your attendance and participation are encouraged.

Pathology

9:15 a.m.—East Venetian Room, Ambassador Hotel

Moderator: Hugh A. Edmondson, M.D., Los Angeles

The Pre-Convention Conference on Microscopic Pathology of Tumors of the Liver, Gallbladder, Biliary Tract and Pancreas will be held from 9:15 a.m. to noon and from 2:00 p.m. to 4:30 p.m. under the chairmanship of Gerson R. Biskind, M.D. Hugh A. Edmondson, M.D., Professor of Pathology, University of Southern California School of Medicine, will be the Moderator. Members who wish to attend this Conference are requested to register now with Weldon K. Bullock, M.D., Registrar, Tumor Tissue Registry, C.M.A. Cancer Commission, Los Angeles County Hospital, 1200 North State Street, Los Angeles 33.

7:00 p.m.—Colonial Room

Dinner meeting of the California Society of Pathologists. For reservations contact Ernest Simard, M.D., secretary, 708 Cass Street, Monterey.

Cancer Commission Dinner

6:30 p.m.—Lido Room

Annual Dinner Meeting of the Cancer Commission and Advisory Committee.

1856 • Centennial Anniversary • 1956

**CALIFORNIA
MEDICAL
ASSOCIATION**

**PROGRAM
85th Annual Session**



AMBASSADOR HOTEL

Los Angeles

April 29 - May 2, 1956

- *Scientific Sessions*
- *Meetings of the House of Delegates*



SIDNEY J. SHIPMAN
President



DONALD A. CHARNOCK
President-elect

PROGRAM AND PRE-CONVENTION REPORTS

for the

CALIFORNIA MEDICAL ASSOCIATION

Eighty-Fifth Annual Session

Ambassador Hotel, Los Angeles

April 29 to May 2, 1956



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PRE-CONVENTION REPORTS

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Guest Speakers



H. McLEOD RIGGINS



ALLAN CAMPBELL BARNES



WILLIAM P. SHEPARD



JULIAN JOHNSON



THEODORE L. BADGER

Guest Speakers

THEODORE L. BADGER, M.D., Boston, Massachusetts — Assistant Clinical Professor of Medicine, Harvard University Medical School.

ALLAN CAMPBELL BARNES, M.D., Cleveland, Ohio—Professor and Chairman, Department of Obstetrics and Gynecology, Western Reserve University School of Medicine.

JULIAN JOHNSON, M.D., Philadelphia, Pennsylvania—Professor of Surgery, University of Pennsylvania School of Medicine.

H. McLEOD RIGGINS, M.D., New York, New York—Associate Professor of Medicine, College of Physicians and Surgeons, Columbia University.

WILLIAM P. SHEPARD, M.D., New York, New York—Second Vice-President, Health and Welfare Division, Metropolitan Life Insurance Company.

Other Section Speakers from Out of State

LIONEL COSIN, M.D., Oxford, England—Chief of Geriatrics Unit, Oxford University Hospitals—Guest of Section on Public Health.

W. ROSS ASHBY, M.D., Gloucester, England—Guest of Section on Allergy.

Information

BADGES. It is important that badges be worn at all times. Admission to scientific meetings is by badge only.

COUNCIL. Frenchette Room. The first meeting of the Council will be held Saturday, April 28 at 9:30 a.m. Further meetings will be held each morning at 7:30 a.m.

DELEGATES. For a list of delegates, meeting times and places, and agenda, see pages 42 to 47 of this program.

EMERGENCY CALLS AND MESSAGES. Each physician should notify his own secretary regarding the *exact* section he plans to attend and the time of his attendance. It is up to the individual physician to keep his own office staff so informed. The Association will *attempt* to transmit messages to the individual physician.

In case of emergency, when the doctor cannot be located, the call will be referred to Emergency Call Service of the Los Angeles County Medical Association, DUnkirk 5-1581.

EXHIBITS. Technical Exhibits—Ballroom, Sunset Room and Boulevard Room, Casino Floor. See list, pages 34 to 41.

Scientific and Organizational Exhibits—Main Lobby. See list on page 30.

Medical Motion Pictures will be shown in the Colonial Room.

You are urged to visit and attend all exhibits.

MEETING TIMES AND PLACES. See chart on page 7 for exact times and places of general and section meetings.

REGISTRATION. Registration and information desks are located at the back of the Ballroom, Casino Floor. *All members, guests, and visitors are requested to register immediately on arrival.* There is no charge for registration. Registration desks are open from 9:00 a.m. to 5 p.m. *Admission to the general and section sessions and exhibit areas is by badge only.*

QUALIFICATIONS/REQUIREMENTS FOR REGISTRATION. (a) All M.D.'s with credentials showing that they hold valid license to practice medicine. (Membership card in C.M.A.; county medical society/association or A.M.A. membership card.) (b) Medical students will be admitted upon presentation of credentials from their medical schools identifying them as medical students. (A membership card of the Student American Medical Association or letter from their dean's office.) (c) Medical secretaries will be admitted upon presentation of a letter from the physician-employer. (d) Pharmacist mates and other military personnel of a like grade will be admitted upon presentation of a letter requesting their admittance, written by their commanding officer. (e) Dentists (D.D.S.), doctors of veterinary medicine (D.V.M.), registered nurses (R.N.), student nurses, x-ray technicians, laboratory technicians, dietitians, allied public health personnel, and others will be admitted provided they have proper identification. (f) *All questions on admission will be passed upon by a member of the Committee on Registration who will be present at the desk.*

Other Meetings and Entertainment

• SUNDAY, APRIL 29

Woman's Auxiliary to the California Medical Association Reception—East and West Venetian rooms—6:00-8:00 p.m.—Honoring Mrs. Sidney J. Shipman, wife of the President of the C.M.A. All doctors and their wives are cordially invited.

California Society of Allergy Reception and Dinner—Nordic Room, Beverly-Hilton Hotel, Beverly Hills, 6:30 p.m.

Medical Assistants Luncheon—Lido Room, 12:15 p.m.

Orthopedic Section Luncheon—Dolphin Court, 12:15 p.m.

• MONDAY, APRIL 30

PRESIDENT'S DINNER DANCE—Cocoanut Grove, 8:00 p.m. Formal dress, optional. Tickets will be on sale in the main lobby of the hotel.

C.M.A. Past Presidents' Lunch—Dolphin Court, 12:15 p.m.

Alumni-Faculty Association of the U. C. School of Medicine Luncheon—Lido Patio, 12:15 p.m.

MONDAY, APRIL 30 (continued)

California Society of Allergy Luncheon—Regency Room, 12:15 p.m.

• TUESDAY, MAY 1

Bureau of Medical Economics—Grove Lounge, 10:00 a.m.

Woman's Auxiliary Luncheon—Cocoanut Grove, 12:30 p.m.—Honoring Mrs. Matthew N. Hosmer, Mrs. Paul Blaisdell, Past State Presidents, and members of the State Advisory Board. For tickets inquire at the Woman's Auxiliary Registration Desk.

State Board of Health—Regency Room, 9:00 a.m.

California Chapter of the American Academy of Pediatrics—Meeting and dinner, West Venetian Room and Venetian Room Foyer, 6:30 p.m.

• WEDNESDAY, MAY 2

Bureau of Medical Economics—Garden Room, 10:00 a.m.

California Society of Allergy—Grove Lounge, 1:00 p.m.

SCIENTIFIC SESSIONS

	SUNDAY APRIL 29 P.M. A.M.		MONDAY APRIL 30 P.M. A.M.		TUESDAY MAY 1 P.M. A.M.		WEDNESDAY MAY 2 P.M. A.M.	
EMBASSY	9:30 a.m. House of Delegates		9:00 Television	2:00 General Meeting	9:00 Television	2:00 Clinical- Pathological Conference 4:00 General Meeting	9:30 a.m. House of Delegates	
WEST VENETIAN	9:00 Pathology and Bacteriology	2:00 Dermatology and Syphilology Pediatrics					9:00 General Practice Public Health Pediatrics	2:00 General Practice
EAST VENETIAN	9:00 General Surgery	2:00 General Medicine	9:00 Radiology Pediatrics		9:00 General Medicine General Surgery		9:00 General Surgery	2:00 Public Health
FRENCH	9:00 Dermatology and Syphilology	2:00 Industrial Medicine and Surgery Orthopedics	9:00 Industrial Medicine and Surgery				9:00 Obstetrics and Gynecology	2:00 Obstetrics and Gynecology
COLONIAL		1 to 5:00 p.m. 7 to 11:00 p.m. Medical Motion Pictures	9:00 Allergy	7 to 11:00 p.m. Medical Motion Pictures	9:00 Pediatrics	1 to 5:00 p.m. 7 to 11:00 p.m. Medical Motion Pictures	9:00 Psychiatry and Neurology	2:00 Psychiatry and Neurology
GROVE LOUNGE	9:00 Orthopedics	2:00 Eye	9:00 Ear, Nose and Throat					2:00 Anesthesiology
REGENCY	9:00 Radiology	2:00 Radiology						

COUNCIL OF THE C.M.A. MEETS DAILY AT 7:30 A.M. IN THE FRENCHETTE ROOM

TECHNICAL EXHIBITS—Sunset Room, Ballroom, Boulevard Room, Casino Floor

SCIENTIFIC EXHIBITS—Lobby

SCIENTIFIC SESSIONS

General Meetings

First General Meeting

MONDAY, APRIL 30

2:00—Embassy Room

- 2:00—Address of Welcome—Edward C. Rosenow, Jr., M.D., President, Los Angeles County Medical Association.
- 2:10—Address of the President—Sidney J. Shipman, M.D., San Francisco.
- 2:20—Management of Postpartum Hemorrhage—Allan Campbell Barnes, M.D., Cleveland, Ohio, by invitation.
- 2:40—Is There a Doctor in the House?—Industry Calling—William P. Shepard, M.D., New York, N. Y., by invitation.
- 3:00—Changing Concepts and Persisting Problems in the Treatment of Pulmonary Tuberculosis—H. McLeod Riggins, M.D., New York, N. Y., by invitation.
- 3:20—The Problem of Diagnosis in Thoracic Tumors—Julian Johnson, M.D., Philadelphia, Penn., by invitation.
- 3:40—Diffuse Pulmonary Lesions—Theodore L. Badger, M.D., Boston, Mass., by invitation.
- 4:00—Adjourn to Visit Technical and Scientific Exhibits.

Second General Meeting

TUESDAY, MAY 1

2:00—Embassy Room

Clinical-Pathological Conference

Thomas H. Brem, M.D., Los Angeles, Moderator

Clinicians: Julius Bauer, M.D., Los Angeles; H. McLeod Riggins, M.D., New York, N. Y., by invitation.

Pathologists: Alvin J. Cox, M.D., San Francisco; Hugh A. Edmondson, M.D., Los Angeles.

2:00—Case No. 1—Alvin J. Cox, M.D., San Francisco, Pathologist.

A young man with slowly progressing disease of the lungs which produced weakness, dyspnea, reduced vital capacity, and irregular density in the x-ray lung fields.

3:00—Case No. 2—Hugh A. Edmondson, M.D., Los Angeles, Pathologist.

A 68-year-old man with an eighteen-month history of weight loss, burning epigastric pain, and increasing weakness.

For complete Case Histories, see opposite page

4:00—Prevention of Poliomyelitis—Malcolm A. Merrill, M.D., and Staff, California State Department of Public Health, Berkeley.

REGISTRATION

Registration and information desks are located at the back of the Ballroom, Casino Floor. *All members, guests, and visitors are requested to register immediately on arrival.* There is no charge for registration. Registration desks are open from 9:00 a.m. to 5:00 p.m. *Admission to the general and section sessions and exhibit areas is by badge only.*

Clinical-Pathological Conference

Following are the cases to be presented at the Clinical-Pathological Conference
Embassy Room, Tuesday, May 1, at 2:00 p.m.

CASE NO. 1

ALVIN J. COX, M.D., San Francisco, *Pathologist*

2:00 p.m.

In 1942 at the age of 28 the patient, an attorney, had an attack of uveitis in the left eye, with later involvement of the right eye. The inflammation subsided spontaneously and he felt well. He was accepted for military service. While in the Navy in 1945, an x-ray study of the chest suggested hilar lymphadenopathy and a small lymph node found in the neck was subjected to biopsy. He was not ill until the middle of 1946, when he noted unusual fatigability and some cough, which was intermittent, usually spasmodic and not severe. There was no expectoration, bleeding or chest pain. He noticed a little exertional dyspnea. Physical examination then was negative; the lungs were clear, the spleen could not be palpated, and there was no peripheral lymphadenopathy. The blood pressure was 120/80. The urine and blood were normal; serological tests for syphilis were negative. A tuberculin skin test was negative. The vital capacity was 3.2 liters. X-ray studies showed disappearance of much of the hilar density noted previously. There was "thickening of the pulmonic markings at both lung roots extending laterally and superiorly into both upper lobes." The process was more extensive on the left side between the clavicle and the fifth rib anteriorly. No cavitation was identified.

In the early part of 1947 the patient was still bothered by fatigability and cough without sputum or chest pain, and physical examination was again negative. The vital capacity was 2.5 liters and an electrocardiogram showed right axis deviation. Later in the year it was noted that the breath sounds were exaggerated in the left upper anterior and posterior portions of the chest. There were some small, discrete, nontender nodes in the lateral aspect of the neck, particularly on the right. For the first time slight cyanosis of the fingernails was noted. X-ray films made in January, April, July and November, 1947, were quite similar, although there appeared to be some coalescence of the densities and upward traction of the left lung root since 1946.

In February, 1948, the patient had an episode of "flu" and noted easy fatigability for several months thereafter. The sedimentation rate was 46 and the hemoglobin 15 grams per 100 cc. of blood. The vital capacity was 2.2 liters and the electrocardiogram again showed right axis deviation. In June dyspnea was noted as moderate, and some enlarged axillary lymph nodes were felt. The patient appeared extremely fatigued. In July intravenous nitrogen mustard in a dose of 17 mg. resulted in equivocal benefit. In October the vital capacity was 2.3 liters. The physical examination was as before. Kviem antigen injected intradermally produced no reaction.

The patient spent the winter of 1948-49 in Death Valley and felt much improved. In May of 1949 the circulation time (arm-ear) was 7.2 seconds and the oxygen saturation of arterial blood was 92 per cent. Late in 1949 there was a period of anorexia, intestinal gas and loose stools. X-ray study of the G. I. tract was negative. The vital capacity was 1.7 liters. Bronchial breath sounds were heard over the upper left chest posteriorly. The erythrocyte sedimentation rate was 29 mm. Further x-ray examination of the chest showed increase in the upper lung densities, with patchy areas of bronchiectasis and emphysema. In addition

there was "diffuse nodulation" throughout the remainder of the lung fields.

In May, 1950, the patient was fairly well but thin in spite of efforts to increase his weight. In September he was again bothered by weakness and dyspnea. There was a persistent heart rate of 102, and a gallop rhythm was heard at the apex. Axillary nodes could not be felt.

Because of nasopharyngeal congestion at night Pyribenzamine,[®] 50 mg., was prescribed in September. Shortly after taking this the patient felt extremely weak and vomited. Dyspnea increased and he was admitted to the hospital, where the chest was found to be full of inspiratory and expiratory wheezes. The vital capacity was 1.7 liters. Electrocardiogram still showed right axis deviation. The blood count was within normal limits; the urine contained "2 plus" protein. He developed cyanosis and deteriorated progressively in spite of helium and oxygen inhalation, ether and oil by rectum, Demerol,[®] theophylline. He became stuporous and died on the fourth hospital day.

CASE NO. 2

HUGH A. EDMONDSON, M.D., Los Angeles, *Pathologist*

3:00 p.m.

History: This was the first hospital admission for this 68-year-old white, single male who entered on October 26, 1955, with the chief complaint of burning epigastric pain and gradually increasing weakness for the past one and one-half years. The pain seemed to bother him most between meals and at night. It was not related to eating any certain foods and no special medication relieved it. Recently the pain had become more severe and was accompanied by vomiting of a dark liquid. The patient also noted a change in his bowel habits. He now had only small amounts of liquid stools, sometimes dark in color, but he had never noted red blood. He had lost 35 pounds with his present illness.

Past History: The patient had worked for over 30 years in the coal mines but was at present unemployed. He had a history of chronic alcoholism with intake of at least one pint of whiskey daily until one year ago. He gave no history of jaundice. He had had St. Vitus' dance for six years as a child. He had injured his hands while a coal miner, and had resultant bilateral Dupuytren's contractures. The review of systems disclosed that he had been very hard of hearing for quite a while and required a hearing aid. For several years had had urinary frequency and nocturia 4 to 8 times per night, voiding but small amounts at a time.

Physical Examination: Weight 124, temperature 98, pulse 75 and regular, blood pressure 112/20. Patient was a well developed, elderly, very thin, white male, who appeared chronically ill. He showed signs of recent weight loss. He was very hard of hearing and wore a hearing aid which improved his hearing appreciably. He had memory loss for both recent and remote events. Pertinent physical findings were as follows: On the eyes, scars of previous pterygia were seen bilaterally. The left ear drum was white and scarred. The mucous membranes in the nose and mouth were markedly pale. The chest had increased AP diameter, was symmetrical, and both diaphragms moved freely. The

lungs were hyperresonant, but otherwise clear. The heart did not appear enlarged. The rhythm was regular, the patient had a Grade III apical systolic murmur and a diastolic murmur heard at the apex. The liver was palpated 3 fingerbreadths below the costal margin and the spleen was felt 2 fingerbreadths below the costal margin. The kidneys were not palpated, but the patient had bilateral costovertebral angle tenderness. There were no abdominal masses palpable. The prostate was 2+ enlarged, nodular, and firm. The peripheral pulses were strong. Arterial pulsation was visible in the nail beds. There were bilateral Dupuytren's contractures. There were several spider nevi on the shoulders. There was no gynecomastia. The skin was very loose and wrinkled as from recent weight loss and it was very dry and scaly with hair loss. Neurologic examination was negative.

Laboratory: Serology negative. WBC 6,000 with normal differential pattern. Hemoglobin 6.2 grams, hematocrit 20 per cent, RBC 2.47 million. There was marked hypochromia of the red cells; mean corpuscular volume 80 cu. microns, mean corpuscular hemoglobin 25 micrograms, mean corpuscular hemoglobin concentration 31 per cent. Urinalysis showed 2+ albuminuria and many RBC's and a few WBC's and 1/20 granular casts microscopically. Phenolsulfonphthalein test: No dye excretion in 15 minutes. Van den Bergh was not elevated. Cephalin flocculation 4+ in 24 hours, thymol turbidity 11.0 units. Bromosulphalein test 8.5 per cent dye retention in 45 minutes. Urine culture revealed hemolytic and nonhemolytic *Staphylococcus aureus*. Anterior projection of chest on October 26, 1955 was read as essentially negative. Blood chemistries on October 27: Blood urea nitrogen 113, glucose 130 mg. per cent, CO₂ 14 mEq/L, chlorides 106 mEq/L. Acid phosphatase 0.2 B.u. Alkaline phosphatase 8.7 B.u. Total protein 6.3 grams with albumin 2.9 and globulin 3.4. Serum iron 65 micrograms per cent and iron binding capacity 200 micrograms per cent. Sodium 130 mEq/L and potassium 5.3 mEq/L. Electrocardiogram on October 27 was suggestive of left ventricular hypertrophy, but not diagnostic. Stool and vomitus were negative for occult blood on one occasion.

Hospital Course: The patient was obviously very ill on admission. He was unable to eat and frequently vomited dark fluid. Stools were liquid and contained mucus. He was afebrile the first three days but on the fourth and fifth days the temperature reached 101°F. The fever then subsided but on the eleventh day he had a shaking chill with temperature rising to 101°F. On catheterization 1150 cc. of urine was obtained from which a heavy growth of *Pseudomonas aeruginosa* was cultured. Gantrisin® was administered and the temperature returned to normal but rose again to 102°F. the last two days.

Because of the gastrointestinal symptoms he was placed on an ulcer regimen with frequent small feedings, antacids, and antispasmodics. He was given blood transfusions with a resulting rise in his hemoglobin to 10.8 gm. Subsequently

however it fell steadily back to 8.7 gm., and another transfusion was given.

Gastrointestinal x-ray showed filling defects in the lower esophagus interpreted as possible esophageal varices. The stomach was dilated. The duodenal bulb was never well rounded out and was considered deformed. There was some retention of barium in the stomach after five hours although the major portion of it was distributed throughout the small bowel. The barium enema disclosed no gross abnormalities of the colon.

Sigmoidoscopy was attempted on November 8, but was unsuccessful due to inadequate preparation. On November 10, his blood urea nitrogen had risen to 168 mg. per cent. CO₂ was 13 mEq/L. The patient's condition was deteriorating. Intravenous fluids and vitamins were begun on November 11 because of his poor oral intake. His urine that morning began to appear blood-tinged and he had been vomiting very dark greenish-black material. Because he appeared to be obstructed, Levin tube was passed. From the visiting relative, the history was obtained of the patient's acute and chronic alcoholism of at least the past 50 years. The patient was seen by the surgeons, but they did not feel that surgical intervention would help the patient. Early in the morning of November 13, the patient developed Cheyne-Stokes respirations with moist rales throughout both lungs. His veins were distended. Because he appeared to be in congestive heart failure, he was given intravenous Cedilanid®, aminophylline, caffeine, and Mercuhydrin®. Tourniquets were placed on the extremities. The patient's respiration changed to a deep regular rate at 30 to 35 per minute. At 4:15 a.m. patient had a grand mal seizure which lasted about three minutes. His blood pressure remained 120/60, pulse 90, regular and strong and respirations 30 and deep. His lungs were much improved over the initial examination. At 5:00 a.m. and 5:05 a.m. the patient had a second and third grand mal seizure. Following the third episode, he turned his head to the right. This was the only localizing sign of any of the seizures. The last seizure lasted 4 to 5 minutes and was interrupted by intravenous Amytal®, grams 7.5. At 5:30 a.m. his blood pressure was 55/30, the radial pulse was weak although the apical pulse was 80, regular and strong. Respirations were still 30 per minute and deep. The patient had been given two units of blood which had been begun the preceding afternoon and had run during the night. His hemoglobin went up to a maximum of 10.8 grams on the morning of November 13. However, his prothrombin time dropped to 30 per cent. Bright red blood had been noted trickling from his mouth, and the Wangensteen suction was draining dark brown liquid. At 6:00 a.m. on November 13, the patient's Cheyne-Stokes respiration began again; his blood pressure remained about 55/30. Through the day, his condition continued downhill. By 7:30 p.m. that night, the patient had become comatose, and he ceased breathing at 10:20 p.m. He was pronounced dead at 10:30 p.m., November 13.

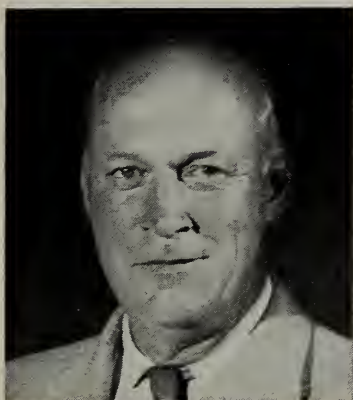
EMERGENCY CALLS AND MESSAGES

Each physician should notify his own secretary regarding the exact section he plans to attend and the time of his attendance. It is up to the individual physician to keep his own office staff so informed. The Association will *attempt* to transmit messages to the individual physician.

In case of emergency, when the doctor cannot be located, the call will be referred to Emergency Call Service of the Los Angeles County Medical Association, DUnkirk 5-1581.

GENERAL MEDICINE

Chairman.....Roger O. Egeberg, M.D., Los Angeles
 Secretary.....Harold C. Sox, M.D., Palo Alto
 Assistant Secretary.....Donald W. Petit, M.D., Pasadena



ROGER O. EGERBERG
Chairman



HAROLD C. SOX
Secretary

SUNDAY, APRIL 29

2:00—East Venetian Room

- 2:00—Analysis of the Systemic Manifestations of Discoid Lupus Erythematosus—Edmund DuBois, M.D., Los Angeles.
- 2:20—Erythema Nodosum and Its Systemic Manifestations—Cutting Favour, M.D., Palo Alto, by invitation.
- 2:40—Treatment Failures in the Management of Pulmonary Disease—Theodore L. Badger, M.D., Boston, Mass., by invitation.
- 3:10—Chairman's Address—Roger Egeberg, M.D., Los Angeles.
- 3:25—Intermission.
- 3:35—Experimental and Clinical Effects of Atmospheric Pollutions—Paul Kotin, M.D., Los Angeles, by invitation.
- 3:55—Remarks on Certain Types of Pulmonary Granulomatosis—H. McLeod Riggins, M.D., New York, N. Y., by invitation.
- 4:25—Clinical Evaluation of Renal Functional Reserve—Ralph Goldman, M.D., Sepulveda.
- 4:45—Business Meeting and Election of Officers.

MONDAY, APRIL 30

9:00—Embassy Room

Television Presentation

For complete Program, see Section on Television

TUESDAY, MAY 1

9:00—East Venetian Room

- Joint Meeting with Section on General Surgery
- 9:00—Preoperative Pulmonary Evaluation of the Surgical Patient—Theodore Badger, M.D., Boston, Mass., by invitation.
- 9:30—Present Treatment of Suppurative Diseases of the Lungs and Bronchi—H. McLeod Riggins, M.D., New York, N. Y., by invitation.
- 10:00—Diaphragmatic Hernia—Julian Johnson, M.D., Philadelphia, Penn., by invitation.
- 10:30—Intermission.
- 10:45—Panel Discussion—Is It Above or Below the Diaphragm?
 Moderator: Roger Egeberg, M.D., Los Angeles
 Members of the Panel: H. McLeod Riggins, M.D., New York, N. Y.; Theodore Badger, M.D., Boston, Mass.; Julian Johnson, M.D., Philadelphia, Penn., all by invitation, and Lyman A. Brewer, III, M.D., Los Angeles.

BRING PROPER IDENTIFICATION FOR REGISTRATION

GENERAL SURGERY

Chairman.....Lyman A. Brewer, III, M.D., Los Angeles
 Secretary.....Orville F. Grimes, M.D., San Francisco
 Assistant Secretary....W. Kenneth Jennings, M.D., Santa Barbara



LYMAN A. BREWER, III
Chairman



ORVILLE F. GRIMES
Secretary

SUNDAY, APRIL 29

9:00—East Venetian Room

- 9:00—The Surgical Treatment of Parotid Tumors—
S. L. Perzik, M.D., Beverly Hills.
- 9:20—Hypothermia in the Treatment of Acute Per-
forated Appendicitis—Donald Brayton, M.D.,
Los Angeles.
- 9:40—Selection of Antibiotics in Surgical Infections
—Seth W. Smith, M.D., Los Angeles.
- 10:00—A Review of Sliding Indirect Inguinal Hernia
—Max R. Gaspar, M.D., Long Beach; Mar-
tin Wooley, M.D., Los Angeles, by invita-
tion, and Eugene Joergenson, M.D., Glen-
dale.
- 10:20—Intermission.
- 10:40—Chairman's Address—Lyman A. Brewer, III,
M.D., Los Angeles.
- 11:00—The Present Status of Vagotomy in the Treat-
ment of Duodenal Ulcer—A Review of 100
Consecutive Cases—Jack M. Farris, M.D., Los
Angeles.
- 11:20—Carcinoma of the Thyroid Gland—George L.
O'Hara, M.D., Van Nuys, and Ian Mac-
donald, M.D., Los Angeles.
- 11:40—Intussusception in Children and Adults—
James L. Kelley, Jr., M.D., San Diego.

MONDAY, APRIL 30

9:00—Embassy Room

Television Presentation

For Program, see Section on Television

TUESDAY, MAY 1

9:00—East Venetian Room

Joint Meeting with Section on General Medicine
 For Program, see Section on General Medicine

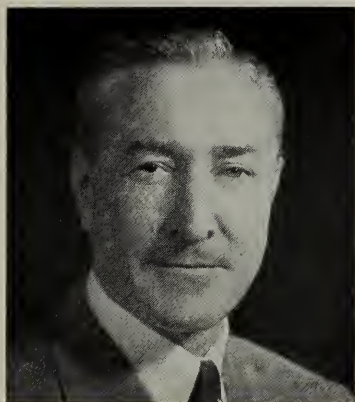
WEDNESDAY, MAY 2

9:00—East Venetian Room

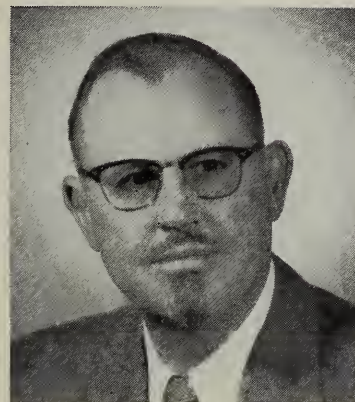
- 9:00—The Surgical Treatment of Inguinal Hernia in
Infants—Frederic P. Shidler, M.D., Menlo
Park.
- 9:20—Massive Hemorrhage from the Lower Intes-
tinal Tract—Harry E. Peters, Jr., M.D., Oak-
land.
- 9:40—Maximum Benefit from Thromboendarterec-
tomy—Charles A. Kruse, M.D., Santa Monica.
- 10:00—Business Meeting and Election of Officers.
- 10:20—Intracardiac Surgery Using a Mechanical
Pump-Oxygenator—Leon Morgenstern, M.D.,
David State, M.D., and Peter F. Salisbury,
M.D., Los Angeles; and Maurice M. Hyman,
M.D., and J. Manny Shore, M.D., by invita-
tion, Los Angeles.
- 10:40—Open Cardiac Surgery—James W. Maloney,
Jr., M.D., by invitation, and William P.
Longmire, Jr., M.D., Los Angeles.
- 11:00—Certain Aspects of Cardiac Surgery—Julian
Johnson, M.D., Philadelphia, Penn., by in-
vitation.
- 11:20—Splenoportography in Portal Hypertension—
William P. Mikkelsen, M.D., Los Angeles,
and A. C. Pattison, M.D., Pasadena.
- 11:40—Experiences in the Use of the Ileo-Bladder
Operation—Henry C. Schwartz, M.D., Los
Angeles, by invitation.

GENERAL PRACTICE

Chairman.....Stanley R. Parkinson, M.D., Marysville
Secretary.....T. Jackson Laughlin, M.D., North Hollywood
Assistant Secretary.....John E. Cox, M.D., Saratoga



STANLEY R. PARKINSON
Chairman



T. JACKSON LAUGHLIN
Secretary

WEDNESDAY, MAY 2

9:00—West Venetian Room

Joint Meeting with Sections on Pediatrics and Public Health
For Program, see Section on Public Health

WEDNESDAY, MAY 2

2:00—West Venetian Room

2:00—Rehabilitation of the Hemiplegic—Elizabeth
Austin, M.D., Los Angeles.

2:20—Management of Nutritional Problems and
Blood Dyscrasias in the Aging Patient—
Arthur A. Marlow, M.D., La Jolla.

2:40—Urological Problems in the Aged—Roger W.
Barnes, M.D., Los Angeles.

3:00— **Panel Discussion**

Gerontologic Aspects of Heart Disease

Moderator: Charles A. Preuss, M.D., Santa Barbara
Members of the Panel: Thomas H. Brem, M.D., Los
Angeles; Edward Shapiro, Beverly Hills; John J.
Sampson, M.D., San Francisco, and George H.
Houck, M.D., Palo Alto.

4:15—Business Meeting and Election of Officers.

4:30—Visit Technical and Scientific Exhibits.

Motion Picture Program

Arthur E. Smith, D.D.S., M.D., Los Angeles, Chairman

Colonial Room

A carefully selected showing of approximately 100 medical motion pictures will be held in the Colonial Room during all or part of Sunday, Monday and Tuesday afternoon and evening.

A full schedule showing the times and titles of each film will appear in the program distributed at the annual session.

ALLERGY

Chairman.....Lazarre J. Courtright, M.D., San Francisco
Vice-Chairman.....Ben C. Eisenberg, M.D., Huntington Park
Secretary.....William J. Kerr, Jr., M.D., San Rafael



LAZARRE J. COURTRIGHT
Chairman



WILLIAM J. KERR, JR.
Secretary

MONDAY, APRIL 30

9:00—Colonial Room

9:00—Evaluation of Skin Tests—An Analysis of 300 Clinical Records—Milton Millman, M.D., San Diego.
Discussion.

9:30—The Allergist Meets His Patients' Emotional Problems—Hyman Miller, M.D., Beverly Hills.
Discussion.

10:00—Ventilatory Pulmonary Function Tests as an Office Procedure—Edward Matzger, M.D., San Francisco.
Discussion.

10:30—Alevaire—Its Use in Asthma (A Controlled Study)—D. Edward Frank, M.D., Sun Valley.
Discussion.

11:00—Chairman's Address: Allergy in a Unified Science—L. J. Courtright, M.D., San Francisco.

11:20—General System Theory in Allergy—W. Ross Ashby, M.D., Gloucester, England, by invitation.
Discussion.

12:30—Regency Room

12:30—Luncheon Meeting—Sponsored jointly by the Section on Allergy and the California Society of Allergy.

PRESIDENT'S DINNER DANCE

MONDAY, APRIL 30

Cocoanut Grove, Ambassador Hotel, 8:00 p.m.

Formal dress optional

Tickets will be on sale in the Main Lobby

ANESTHESIOLOGY

Chairman.....John P. Howard, M.D., San Diego
Secretary.....Robert W. Churchill, M.D., Santa Rosa
Assistant Secretary.....Howard S. Downs, M.D., Glendale



JOHN P. HOWARD
Chairman



ROBERT W. CHURCHILL
Secretary

WEDNESDAY, MAY 2

1:00—Grove Lounge

1:00—Annual Meeting—California Society of Anesthesiology.

2:00—Anesthesia: Its Recent Advances—Thomas W. McIntosh, M.D., Pasadena.

2:20—Clinical Experience with Trifluorvinylethyl Ether (Fluramar)—William H. Darnette, M.D., Los Angeles, by invitation.

2:40—Steroid Anesthesia—Frank J. Murphy, M.D., San Francisco.

3:00—Clinical Experiences with Viadril—Charles D. Anderson, M.D., Oakland.

3:20—Determination of Venous Pressure During Surgery—Charles C. Wycoff, M.D., San Francisco.

3:40—Recess: Business Meeting and Election of Officers.

4:00— **Panel Discussion**

Some Consequences of Prolonged Surgery and Anesthesia

Moderator: Robert W. Churchill, M.D., Santa Rosa

Members of the Panel: Carl Anderson, M.D., Santa Rosa; Philip Bailey, M.D., San Francisco; Elton E. Morel, M.D., Glendale; Robert E. Ploss, M.D., San Bernardino; John B. Dillon, M.D., Los Angeles; Philip J. Vogel, M.D., Los Angeles, and A. A. Thurlow, Jr., M.D., Santa Rosa.

RECEPTION

WOMAN'S AUXILIARY TO THE C.M.A.

SUNDAY, APRIL 29, 6 to 8 P.M.

East and West Venetian Rooms

Honoring Mrs. Sidney J. Shipman

All doctors and their wives are cordially invited

DERMATOLOGY AND SYPHILOLOGY

Chairman.....Ben A. Newman, M.D., Beverly Hills
 Vice-Chairman.....Max E. Krause, M.D., Oakland
 Secretary.....Anker K. Jensen, M.D., Los Angeles
 Assistant Secretary.....Edwin M. Hamlin, M.D., Fresno



BEN A. NEWMAN
Chairman



ANKER K. JENSEN
Secretary

SUNDAY, APRIL 29

9:00—French Room

9:00—Infection About the Nails Caused by *Pseudomonas Aeruginosa*—Marjorie Frantz Bauer, M.D., Los Angeles.

Discussion.

9:20—The Disease Called "Wildfire"—Clement E. Counter, M.D., Long Beach.

Discussion.

9:40—Cutaneous Varices Simulating Malignant Melanoma—Ervin Epstein, M.D., and Frederick G. Novy, Jr., M.D., Oakland; John Richard Skahen, M.D., San Francisco, by invitation.

Discussion.

10:00—Plaquenil Sulfate for Lupus Erythematosus and Polymorphous Light Sensitivity Eruption—James H. Bennett, M.D., and Rees B. Rees, M.D., San Francisco.

Discussion.

10:20—Recess.

10:30—An Unusual Connective Tissue Tumor—Walter R. Nickel, M.D., San Diego.

Discussion.

10:50—Variant of Seborrheic Keratosis—Nelson Paul Anderson, M.D., Los Angeles, and Lyon Rowe, M.D., Los Angeles, by invitation.

Discussion.

11:10—The Study of Various Antihistamines as Local Agents for Minor Surgical Procedures of the Skin—Maximilian E. Obermayer, M.D., Los Angeles; Murray C. Zimmerman, M.D.,

Whittier; Charles George Steffen, M.D., Covina; and Richard Mihan, M.D., Los Angeles, by invitation.

Discussion.

11:30—Business Meeting and Election of Officers.

SUNDAY, APRIL 29

2:00—West Venetian Room

Joint Meeting with Section on Pediatrics

2:00—Treatment of Moniliasis with Nystatin—Edwin T. Wright, M.D.; James H. Graham, M.D., by invitation, and Thomas H. Sternberg, M.D., Los Angeles.

Discussion.

2:20—Y00-Y00: A Case Study—Margaret Ann Storkan, M.D., Redondo Beach.

Discussion.

2:40—Symmetric Lividity of the Soles Seen in Private Practice—Lawrence M. Nelson, M.D., Santa Barbara.

Discussion.

3:00—Dermatologic Manifestations of Systemic Diseases in Children—George N. Donnell, M.D., Los Angeles.

Discussion.

3:20—The Natural History of Untreated Strawberry Hemangiomas—Alvin H. Jacobs, M.D., San Francisco.

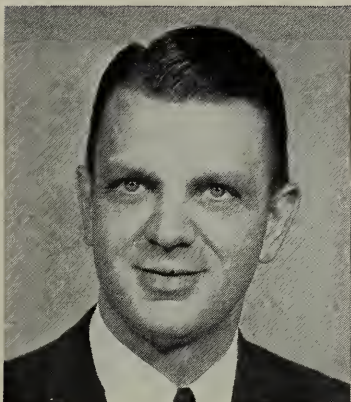
Discussion.

3:40—Chairman's Address: Cutaneous Tumors of Children, Benign and Malignant—Ben A. Newman, M.D., Beverly Hills.

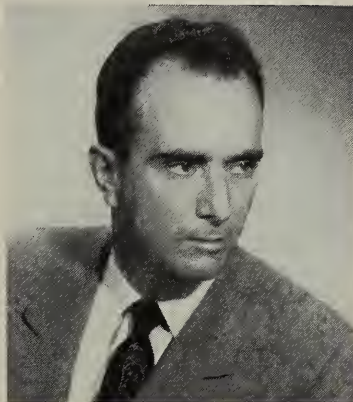
Discussion.

EAR, NOSE AND THROAT

Chairman.....Robert W. Godwin, M.D., Long Beach
Secretary.....E. Gordon McCoy, M.D., San Francisco
Assistant Secretary.....Seymour J. Brockman, M.D., Los Angeles



ROBERT W. GODWIN
Chairman



E. GORDON MCCOY
Secretary

MONDAY, APRIL 30

9:00—Grove Lounge

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| 9:00—Carcinoma of the False Vocal Cord—Walter P. Work, M.D., San Francisco.
Discussion. | 10:30—Block Anesthesia as Related to Oral and Maxillofacial Surgery—Jack H. Seltsam, D.D.S., M.D., Los Angeles, by invitation.
Discussion. |
| 9:30—Granulomatous Polyp of the Larynx Due to Direct Laryngoscopy—M. C. Myerson, M.D., Beverly Hills.
Discussion. | 11:00—Carcinoma of the Nasopharynx—Treatment with Radioactive Cobalt — Wayne Deatsch, M.D., San Francisco.
Discussion. |
| 10:00—Surgical Treatment of Paralysis of Swallowing Following Poliomyelitis—Samuel Kaplan, M.D., Beverly Hills.
Discussion. | 11:30—Business Meeting and Election of Officers. |
| | 11:40—Visit Technical and Scientific Exhibits. |

REGISTRATION

Registration and information desks are located at the back of the Ballroom, Casino Floor. *All members, guests, and visitors are requested to register immediately on arrival.* There is no charge for registration. Registration desks are open from 9:00 a.m to 5:00 p.m. *Admission to the general and section sessions and exhibit areas is by badge only.*

EYE

Chairman.....Robert N. Shaffer, M.D., San Francisco
Secretary.....Channing W. Hale, M.D., Pomona
Assistant Secretary.....Harold B. Alexander, M.D., Santa Barbara



ROBERT N. SHAFFER
Chairman



CHANNING W. HALE
Secretary

SUNDAY, APRIL 29

2:00—Grove Lounge

- 2:00—Observations on the Vitreous—Before and After Cataract Surgery—S. Rodman Irvine, M.D., Beverly Hills.
Discussion.
- 2:30—Traumatic Surgery of the Cornea—Orwyn H. Ellis, M.D., Los Angeles.
Discussion.

3:00—Complications of Keratoplasty—Clarence H. Albaugh, M.D., Los Angeles.
Discussion.

- 3:30—The Effect of Drugs Used in Anesthesia on the Extraocular Muscles—John B. Dillon, M.D., Los Angeles.
- 4:00—Business Meeting and Election of Officers.
- 4:15—Visit Technical and Scientific Exhibits.

EMERGENCY CALLS AND MESSAGES

Each physician should notify his own secretary regarding the exact section he plans to attend and the time of his attendance. It is up to the individual physician to keep his own office staff so informed. The Association will *attempt* to transmit messages to the individual physician.

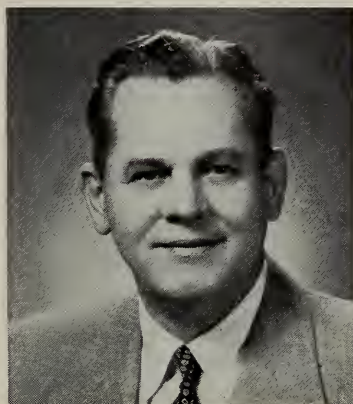
In case of emergency, when the doctor cannot be located, the call will be referred to Emergency Call Service of the Los Angeles County Medical Association, DUnkirk 5-1581.

INDUSTRIAL MEDICINE AND SURGERY

Chairman.....Verne G. Ghormley, M.D., Fresno
 Secretary.....Homer S. Elmquist, M.D., Los Angeles
 Assistant Secretary.....Douglas D. McKinnon, M.D., Los Angeles



VERNE G. GHORMLEY
Chairman



HOMER S. ELMQUIST
Secretary

SUNDAY, APRIL 29

2:00—French Room

Joint Meeting with Section on Orthopedics

Co-Chairmen: Verne G. Ghormley, M.D., Fresno
 Abraham B. Sirbu, M.D., San Francisco

2:00—Prescription for Headache—(Workmen's Compensation)—William P. Shepard, M.D., New York, N. Y., by invitation.

2:30—Surgical Treatment of Intervertebral Disc Lesions—D. H. Werden, M.D., San Diego.

3:00—Discussion.

3:00—Nonoperative Treatment of Protruded Discs—Merrill C. Mensor, M.D., San Francisco.

3:10—Treatment of Protruded Disc by Laminectomy Only—John G. Manning, M.D., Pasadena.

3:20—Treatment of Protruded Disc by Laminectomy with Fusion—Arthur Holstein, M.D., Berkeley.

3:30—General Discussion.

3:45—The Use of Hydrocortisone Tertiary Butyl Acetate—Lewis Cozen, M.D., Los Angeles. Discussion.

4:15—The Neurosurgeon as Independent Medical Examiner—Frederick A. Fender, M.D., San Francisco. Discussion.

MONDAY, APRIL 30

9:00—French Room

9:00—The Art of Human Relations in Industrial Medicine—Aaron S. Leven, M.D., Los Angeles.

9:30—Brucellosis and Its Relation to Degeneration of Intervertebral Discs—Joseph Franklin Griggs, M.D., Claremont, and T. de Villafane Lastra, M.D., Cordoba, Argentina, by invitation.

10:00—Rehabilitation of the Patient with the Post-thrombophlebitic Syndrome—Roy J. Popkin, M.D., Los Angeles.

10:30—A Dynamic Approach to Industrial Rehabilitation—Its Theory and Practical Application—Leonard J. Yamshon, M.D., Los Angeles.

11:00—Report of the Committee on Grip Measurements of the California Medical Association—John E. Kirkpatrick, M.D., San Francisco.

11:30—Chairman's Address: The Role of Preexisting Pathology in Industrial Injuries—Verne G. Ghormley, M.D., Fresno.

12:00—Business Meeting and Election of Officers.

TUESDAY, MAY 1

9:00—Embassy Room

Television Presentation

For complete Program, see Section on Television

9:00—Demonstration of Neurological Cases.

9:30—Rehabilitation of the Hemiplegic Patient.

10:00—A Correlation of Clinical, Pathologic and Roentgenographic Features of Joint Disease.

OBSTETRICS AND GYNECOLOGY

Chairman.....Charles T. Hayden, M.D., Oakland
 Vice-Chairman.....George E. Judd, M.D., Los Angeles
 Secretary.....Ralph C. Benson, M.D., San Francisco



CHARLES T. HAYDEN
Chairman



RALPH C. BENSON
Secretary

WEDNESDAY, MAY 2

9:00—French Room

- 9:00—Business Meeting.
- 9:30—A Postmaturity Syndrome in the Newborn as Predicted by Vaginal Cytology—Allan Campbell Barnes, M.D., Cleveland, Ohio, by invitation.
 Discussion by Milton Rosenthal, M.D., Los Angeles.
- 10:00—Experience with the Manchester Operation at the University of California Hospital, San Francisco—Edward C. Hill, M.D., San Francisco.
 Discussion by Harold K. Marshall, M.D., Glendale.
- 10:30—Neurologic Examination of the Vagina—Arnold H. Kegel, M.D., Los Angeles.
 Discussion by Edward G. Jones, M.D., Los Angeles.
- 11:00—Uterine Dilatation and Curettage with a Survey of Pitfalls—Preston H. Peterson, M.D., Stockton.
 Discussion by Robert DeVoe, M.D., San Leandro.
- 11:30—Election of Officers.

WEDNESDAY, MAY 2

2:00—French Room

- 2:00—Chairman's Address: Endometriosis—Charles T. Hayden, M.D., Oakland.
- 2:30—Stress Incontinence in Women—Treatment by Retropubic Urethrovesical Suspension—Robert W. Noyes, M.D., San Francisco.
 Discussion by Henry N. Shaw, M.D., San Francisco.
- 3:00—Abruptio Placenta—Bawa P. Singh, M.D., Los Angeles, by invitation.
 Discussion by Karl Schaupp, Jr., San Francisco.
- 3:30—Radium Therapy of Pelvic Malignancies—Allan Campbell Barnes, M.D., Cleveland, Ohio, by invitation.
 Discussion by James Nolan, M.D., Los Angeles.
- 4:00—Adjournment—Visit Scientific and Technical Exhibits.

BRING PROPER IDENTIFICATION FOR REGISTRATION

ORTHOPEDICS

Chairman.....Abraham B. Sirbu, M.D., San Francisco
 Secretary.....John R. Black, M.D., Los Angeles
 Assistant Secretary.....Ray M. Wallerius, M.D., Sacramento



ABRAHAM B. SIRBU
Chairman



JOHN R. BLACK
Secretary

SUNDAY, APRIL 29

9:00—Grove Lounge

9:00—Chairman's Address—Abraham B. Sirbu, M.D., San Francisco.

9:30—The Principles of Reconstruction of the Upper Extremity Paralyzed by Poliomyelitis—Edwin R. Schottstaedt, M.D., San Francisco.

9:50—The Principles of Reconstruction of the Lower Extremity Paralyzed by Poliomyelitis—Alvia W. Brockway, M.D., Los Angeles.
Discussion.

10:30—Legg-Perthe's Disease and Femoral Capital Epiphysitis—Eugene E. Bleck, M.D., San Mateo, by invitation.
Discussion.

11:00—The Mitchell Bunionectomy—August W. Meier, M.D., Palo Alto.
Discussion.

11:30—Business Meeting and Election of Officers.

12:15—Luncheon Meeting—Dolphin Court.

SUNDAY, APRIL 29

2:00—French Room

Joint Meeting with Section on Industrial Medicine and Surgery

Co-Chairmen: Verne G. Ghormley, M.D., Fresno
Abraham B. Sirbu, M.D., San Francisco

2:00—Prescription for Headache—(Workmen's Compensation)—William P. Shepard, M.D., New York, N. Y., by invitation.

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3:30—General Discussion.

3:45—The Use of Hydrocortisone Tertiary Butyl Acetate—Lewis Cozen, M.D., Los Angeles.

Discussion.

4:15—The Neurosurgeon as Independent Medical Examiner—Frederick A. Fender, M.D., San Francisco.

Discussion.

TUESDAY, MAY 1

9:00—Embassy Room

Television Presentation

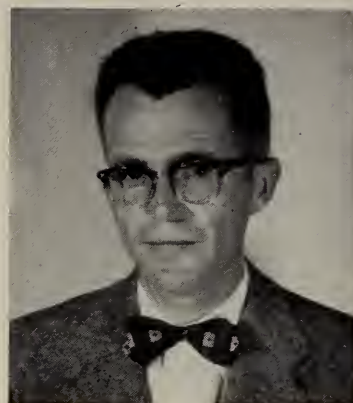
For complete Program, see Section on Television

PATHOLOGY AND BACTERIOLOGY

Chairman.....Orlyn B. Pratt, M.D., Los Angeles
 Secretary.....Justin R. Dorgeloh, M.D., Oakland
 Assistant Secretary.....Dominic A. DeSanto, M.D., San Diego



ORLYN B. PRATT
Chairman



JUSTIN R. DORGELOH
Secretary

SUNDAY, APRIL 29

9:00—West Venetian Room

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|---|--|
| <p>9:00—Review and Analysis of a Group of 1,000 Coroner's Autopsies—Robert W. Huntington, M.D., Bakersfield.
Discussion.</p> <p>9:25—The Determination of Serum Transaminase in Cardiac Infarction—Alfred Deutsch, Ph.D., Los Angeles, by invitation.
Discussion.</p> <p>9:50—Chairman's Address: Aldosteronism Associated with Adrenal Cortical Adenoma—Orlyn B. Pratt, M.D., Los Angeles.
Discussion.</p> | <p>10:30—Intermission.</p> <p>10:40—A Device for the Quantitative Analysis of Paper Electrophoresis Strips, Ancillary Apparatus, and Illustrative Results—Charles M. Blumenfeld, M.D., Sacramento.
Discussion.</p> <p>11:05—The Field of Histochemistry in Medical Research—Raymond Bangle, M.D., Los Angeles.
Discussion.</p> <p>11:30—Business Meeting and Election of Officers.</p> |
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PRESIDENT'S DINNER DANCE

MONDAY, APRIL 30

Cocoanut Grove, Ambassador Hotel, 8:00 p.m.

Formal dress optional

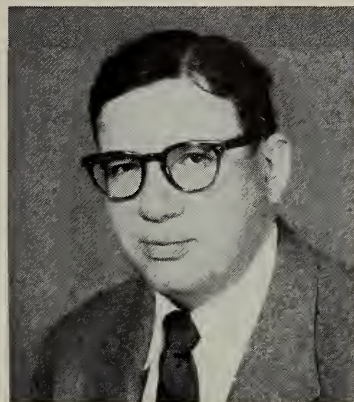
Tickets will be on sale in the Main Lobby

PEDIATRICS

Chairman.....Milo B. Brooks, M.D., Los Angeles
Secretary.....Moses Grossman, M.D., San Francisco
Assistant Secretary.....Sidney Rosin, M.D., Los Angeles



MILO B. BROOKS
Chairman



MOSES GROSSMAN
Secretary

SUNDAY, APRIL 29

2:00—West Venetian Room

Joint Meeting with Section on Dermatology and Syphilology

For Program, see Section on Dermatology
and Syphilology

MONDAY, APRIL 30

9:00—East Venetian Room

Joint Meeting with Section on Radiology

For Program, see Section on Radiology

TUESDAY, MAY 1

9:00—Colonial Room

9:00—Vitamin D Resistant Rickets—Neil N. Litman,
M.D., Los Angeles.
Discussion.

9:30—Use of Acute Phase Reactants as a Battery of
Tests in Diagnosis of Acute Rheumatic Fever
and Allied Conditions—Forrest H. Adams,
M.D., Los Angeles.
Discussion.

10:00—Chairman's Address: Prosthesis in Children—
Milo B. Brooks, M.D., Los Angeles.
Discussion.

10:30—Management of Nephrosis—Carolyn Piel,
M.D., San Francisco, by invitation.
Discussion.

11:00—Parent Development—David Belais Friedman,
M.D., Los Angeles.
Discussion.

11:30—Business Meeting and Election of Officers.

WEDNESDAY, MAY 2

9:00—West Venetian Room

Joint Meeting with Sections on General Practice
and Public Health

For Program, see Section on Public Health.

VISIT THE TECHNICAL AND SCIENTIFIC EXHIBITS

PSYCHIATRY AND NEUROLOGY

Chairman.....Knox H. Finley, M.D., San Francisco
 Secretary.....William F. Northrup, Jr., M.D., Pasadena
 Assistant Secretary.....Joachim A. Haenel, M.D., Los Angeles



KNOX H. FINLEY
Chairman



WILLIAM F. NORTHROP, JR.
Secretary

WEDNESDAY, MAY 2

9:00—Colonial Room

- 9:00—Business Meeting.
- 9:30—Pronestyl in Myotonia Atrophica—Walter J. Friedlander, M.D., San Francisco.
Discussion.
- 10:00—Cerebral Changes in Hypoglycemia—Cyril B. Courville, M.D., Los Angeles.
Discussion.
- 10:30—The Use and Misuse of Sedation and the Seclusion Room in Mental Illness—Harry A. Wilmer, M.D., Oakland.
Discussion.
- 11:00—The Use of Meratran and Meratran-Serpasil Combinations on Patients with Depressions and Anxiety States—Sidney Cohen, M.D., Los Angeles.
Discussion.
- 11:30—Election of Officers.
- 11:45—Visit Technical and Scientific Exhibits.

WEDNESDAY, MAY 2

2:00—Colonial Room

- 2:00—Chairman's Address: Neurology, Neurosurgery and Psychiatry—Knox H. Finley, M.D., San Francisco.
Discussion.
- 2:30—Psychiatry and the Law—Mark Zeifert, M.D., Fresno.
Discussion.
- 3:00—Present Evaluations of the Operability of Brain Tumors—C. Hunter Shelden, M.D., Pasadena.
Discussion.
- 3:30—The Sexual Psychopath in California—David Lieberman, M.D., Talmage.
Discussion.
- 4:00—Impairment of Performance by Subclinical Epileptic Seizures—Charles L. Yeager, M.D., San Francisco, and John S. Guerrant, M.D., San Francisco, by invitation.
Discussion.
- 4:30—Adjourn to visit Technical and Scientific Exhibits.

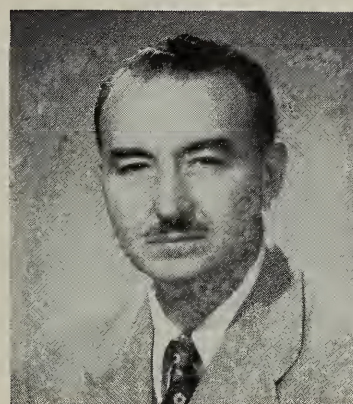
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PUBLIC HEALTH

Chairman.....E. M. Bingham, M.D., Stockton
 Secretary.....Wilber J. Menke, Jr., M.D., Pasadena
 Assistant Secretary.....James C. Malcolm, M.D., San Leandro



E. M. BINGHAM
Chairman



WILBER J. MENKE, JR.
Secretary

WEDNESDAY, MAY 2

9:00—West Venetian Room

Joint Meeting with Sections on General Practice
and Pediatrics

- 9:00—Control of Diarrheal Diseases in California
State Hospitals for Retarded Children—
Thomas L. Nelson, M.D., Eldredge and Rose-
marie Brunetti, M.D., Carmichael.
- 10:00—Dermal Sensitivity in Human Brucellosis and
Its Epidemiological Significance—Charles M.
Carpenter, M.D., Los Angeles; and Ruth H.
Boak, M.D., Dexter H. Howard, Ph.D., and
Dorothy Heilman, M.D., Los Angeles, all
by invitation.
- 10:30—Mumps Meningoencephalitis — Henry B.
Bruyn, M.D., San Francisco.
- 11:00—Management of Tuberculosis Infection in In-
fancy and Childhood—Merl J. Carson, M.D.,
Los Angeles.
- 11:30—Rehabilitation in Geriatrics — Lionel Cosin,
M.D., London, England, by invitation.

WEDNESDAY, MAY 2

2:00—East Venetian Room

- 2:00—Public Health Experience with the T.P.I. Test
—John M. Chapman, M.D., Charles M. Car-
penter, M.D., and L. S. Goerke, M.D., Los
Angeles; and Ruth Boak, M.D., Los An-
geles, by invitation.
- 2:30—Preventive Medicine and Indigent Care—H. D.
Chope, M.D., San Mateo.
- 3:00—Epidemiological Control of Streptococcus In-
fections in School-Age Populations—Edward
Lee Russell, M.D., Santa Ana.
- 3:30— **Panel Discussion**
Infectious Hepatitis
Moderator: Frederic Kriete, M.D., Berkeley
Members of the Panel: Herbert Bauer, M.D., Wood-
land; John M. Chapman, M.D., Los Angeles;
James Culver, M.D., Berkeley, and Albert G.
Bower, M.D., Pasadena.
- 4:30—Business Meeting and Election of Officers.

VISIT THE TECHNICAL AND SCIENTIFIC EXHIBITS

RADIOLOGY

Chairman.....Merrell A. Sisson, M.D., San Francisco
 Secretary.....Austin R. Wilson, M.D., Glendale
 Assistant Secretary.....Stanford B. Rossiter, M.D., Menlo Park



MERRELL A. SISSON
Chairman



AUSTIN R. WILSON
Secretary

SUNDAY, APRIL 29

9:00—Regency Room

- 9:00—Radioiodine Thyroid Studies—Practical Considerations—Warren J. Zager, M.D., Los Angeles.
 Discussion.
- 9:30—Radiation Therapy of Nasopharyngeal Tumors—Reynold F. Brown, M.D., Robert S. Stone, M.D., Lewis Morrison, M.D., and Bertram V. A. Low-Beer, M.D., (deceased), San Francisco.
 Discussion.
- 10:00—Combined Use of Chemotherapy, X-ray and Surgery in the Treatment of Cancer—Ralph L. Byron, Jr., M.D., Duarte.
 Discussion.
- 10:30—Recess—Annual Meeting of the Pacific Roentgen Society.

SUNDAY, APRIL 29

2:00—Regency Room

- 2:00—Some Observations on the Use of Cholografin in Intravenous Cholangiography—Worth Hooper, M.D., by invitation, and George Jacobson, M.D., Los Angeles.
 Discussion.

- 2:20—Fluoroscopic Image Amplification in Gastrointestinal Radiology—J. Maurice Robinson, M.D., San Francisco.
 Discussion.
- 2:40—The Ileocecal Valve—Variation in Anatomy and Pathology—Charles E. Grayson, M.D., Sacramento.
 Discussion.
- 3:00—Pyrosis—Roentgen Manifestations—David Zion, M.D., Los Angeles, by invitation.
 Discussion.
- 3:20—Recess.
- 3:40—Business Meeting.
- 4:00—Hepatosplenography—Leo G. Rigler, M.D., Duarte, by invitation.
 Discussion.
- 4:20—Some Applications of the Roentgen Demonstration of the Venous Drainage from Bones.—Howard L. Steinbach, M.D., San Francisco.
 Discussion.
- 4:40—Traumatic Hemopneumothorax in the Minor Pulmonary Fissure—Henry P. Brean, M.D., and Alvin S. Hambly, Jr., M.D., Berkeley; and J. Hallam Cope, M.D., Oakland.
 Discussion.

MONDAY, APRIL 30

9:00—East Venetian Room

Joint Meeting with Section on Pediatrics

Symposium

Congenital Heart Disease

9:00—The Cardiac Team—Wallace Austin, M.D., by invitation, and Forrest Adams, M.D., Los Angeles.

9:20—Angiocardiographic Movies — (1) Normal Heart; (2) Major Shunts; (3) Retrograde Carotid Angiography—Earl R. Miller, M.D., San Francisco.

9:40—Angiocardiography in Congenital Heart Disease—Bernard J. O'Loughlin, M.D., Los Angeles.

10:00—Question and Answer Period.

10:20—Recess.

10:40—Retrograde Brachial Arteriography in the Diagnosis of Patent Ductus Arteriosus and Coarctation in the First Year of Life—Herbert L. Abrams, M.D., San Francisco.

11:00—Evaluation of Diagnostic Data in the Surgical Treatment of Congenital Heart Disease—Donald G. Mulder, M.D., and James V. Maloney, M.D., Los Angeles, both by invitation.

11:20—Five-Year Evaluation of Surgically Treated Congenital Heart Disease — Ellen Simpson, M.D., San Francisco.

11:40—Question and Answer Period.

SECTION ON UROLOGY

Chairman.....Wilson Stegeman, M.D., Santa Rosa
Secretary.....Edmund Crowley, M.D., Los Angeles
Assistant Secretary.....Ray C. Atkinson, M.D., Oakland

The Section on Urology will hold no section meeting of its own this year due to a change in the California Medical Association meeting dates which conflict with the Annual Meeting of the Western Section of the American Urological Association. The latter will hold its meeting in San Francisco, Sheraton-Palace Hotel, April 30 to May 3. The C.M.A. Section on Urology will hold a token meeting April 29 and adjourn to San Francisco to meet with the Western Section of the American Urological Association.

PRESIDENT'S DINNER DANCE

MONDAY, APRIL 30

Cocoanut Grove, Ambassador Hotel, 8:00 p.m.

Formal dress optional

Tickets will be on sale in the Main Lobby

Television

Committee on Television

George C. Griffith, M.D., Los Angeles, Chairman

Co-Chairmen: Donald C. Balfour, Jr., M.D., Los Angeles, and Richard S. Cosby, M.D., Los Angeles

Arranged with the cooperation of the Los Angeles County Hospital and produced through the courtesy of Smith, Kline & French Laboratories, Philadelphia, Pennsylvania

MONDAY, APRIL 30

9:00—Embassy Room

Moderator: George C. Griffith, M.D., Los Angeles

- 9:00—**Diagnosis and Treatment of Pulmonary Ventilatory Failure**—John E. Affeldt, M.D., Milton G. Crane, M.D., Jack D. Hackney, M.D., and Stanley N. Rokaw, M.D., Rancho Los Amigos Respiratory Center for Poliomyelitis, Hondo.

The Infrared CO₂ Analyzer is used to diagnose pulmonary ventilatory failure by measuring alveolar or mixed venous CO₂ levels. The tank respirator and/or tracheotomy are useful in treating terminal failure in asthma, emphysema, thoracic fixation and poliomyelitis. Such cases with laboratory studies will be presented.

- 9:30—**The Recognition and Management of Respiratory Acidosis**—Reginald H. Smart, M.D., Hurley L. Motley, M.D., and Joseph F. Boyle, M.D., Hospital of the Good Samaritan, Los Angeles.

Patients die daily of unrecognized respiratory acidosis although certain clinical manifestations should arouse the physician's suspicion. There are simple diagnostic laboratory procedures that ought to be available in every hospital. These will be presented with demonstrations of arterial blood pH determinations, effective methods of treatment, and illustrative cases.

- 10:00—**Cine Roentgenography of Diaphragmatic Motion**—George M. Campion, M.D., Irving Rehman, M.D., and Richard E. Ottoman, M.D., St. Joseph Hospital, Burbank, and Walt Disney Research Foundation, Burbank.

A discussion of the changes in outline, motility, and position of the diaphragm in different pathological states, intrinsic to the diaphragm, and in certain diseases of the lungs will be presented with special motion picture filming of fluoroscopic observations.

- 10:30—**Intermission.**

Moderator: Paul Starr, M.D., Los Angeles

- 11:00—**Coccidioidomycosis**—Roger O. Egeberg, M.D., Ann F. Elconin, M.D., Robert Weir, M.D., and Robert Lubarski, Ph.D., Veterans Administration Center, Los Angeles.

With the aid of colored movies, x-ray films, diagrams, maps, and laboratory equipment, a little of the story of coccidioidomycosis will be told. This will cover a brief discussion on the probable source of infection (the soil), the area of distribution, the clinical picture, and the laboratory aspects of primary disease and its complications; and the clinical picture and the laboratory aspects of the disseminated disease, the basis for diagnosis, determination of prognosis, and a brief review of the treatment.

- 11:30—**Aneurysms of the Abdominal Aorta**—J. Howard Payne, M.D., Travis Winsor, M.D., Leland Hawkins, M.D., Herbert J. Movius, M.D., Walter P. Martin, M.D., and Max R. Gaspar, M.D., Los Angeles County Hospital, Hospital of the Good Samaritan, Los Angeles; Veterans Administration Hospital, and Harriman Jones Clinic Hospital, Long Beach.

The problems presented to the physician by a patient with an aneurysm of the abdominal aorta will be illustrated. The prognosis, methods of evaluation and selection of those patients suitable for surgical therapy will be emphasized. Important aspects of the surgical excision and replacement with a "graft" will be demonstrated.

TUESDAY, MAY 1

9:00—Embassy Room

Moderator: Augustus S. Rose, M.D., Los Angeles

- 9:00—**Demonstration of Neurological Cases**—J. M. Nielsen, M.D., Theodore Kurze, M.D., Lawrence Jacobs, M.D., Los Angeles County Hospital, Los Angeles.

Cases of various neurological diseases will be presented with succinct statements of the condition and the findings.

- 9:30—**Rehabilitation of the Hemiplegic Patient**—Robert V. Miller, M.D., and Robert L. Smith, M.D., Veterans Administration Center, Los Angeles.

It is estimated that there are approximately 1,250,000 hemiplegic patients in the United States and that they constitute one of the largest groups of individuals suffering from chronic neurological disease. The purpose of a program of rehabilitation is to retrain the patient to ambulate, perform the necessary acts of daily living and to obtain the maximum use of the individual's physical capabilities so that he may become as independent as possible.

- 10:00—**A Correlation of Clinical, Pathologic and Roentgenographic Features of Joint Disease**—Albert J. Josselson, M.D., White Memorial Hospital, Los Angeles.

Patients suffering from major or important types of arthritis will be presented briefly to demonstrate salient systemic or local manifestations of their disease. Features of the gross pathology will then be emphasized with schematic blackboard sketches. Also, x-ray films of the same joints will be viewed to illustrate the appearance of the lesions seen clinically and described pathologically.

- 10:30—**Intermission.**

Moderator: Thomas H. Brem, M.D., Long Beach

11:00—**Sudden Unexpected Death on a Functional Basis: A Chapter of Psychosomatic Medicine** —Julius Bauer, M.D., Irving Gordon, M.D., and Harry Roth, M.D., Los Angeles County Hospital.

Sudden unexpected death on a functional basis attracted a great deal of attention, particularly from the viewpoint of legal medicine, in the first three decades of this century. Hyperplasia of the thymus and lymphatic tissue, hypoplasia of the aorta and chromaffine tissue have been found at autopsy of many such cases. Ventricular fibrillation without evident cause except for emotional shock appeared to be the most satis-

factory explanation. A case of this type, sudden death during psychiatric interview of a patient with bronchial asthma is reported.

11:30—**Diagnosis and Treatment of Pheochromocytoma** — John Martin Askey, M.D., A. C. P. Bakos, M.D., and Robert C. Surridge, M.D., St. Vincent's Hospital, Los Angeles.

A panel discussion supplemented by a 20-minute titled film depicting diagnostic procedures and the surgical treatment of pheochromocytoma. The importance of suspecting the presence of pheochromocytoma in all patients with a hypertensive syndrome is stressed. The film illustrates and documents the exact preoperative and operative medical management in this disease.

Motion Picture Program

Arthur E. Smith, D.D.S., M.D., Los Angeles, Chairman

Colonial Room

A carefully selected showing of approximately 100 medical motion pictures will be held in the Colonial Room during all or part of Sunday, Monday and Tuesday afternoon and evening.

A full schedule showing the times and titles of each film will appear in the program distributed at the annual session.

EMERGENCY CALLS AND MESSAGES

Each physician should notify his own secretary regarding the exact section he plans to attend and the time of his attendance. It is up to the individual physician to keep his own office staff so informed. The Association will *attempt* to transmit messages to the individual physician.

In case of emergency, when the doctor cannot be located, the call will be referred to Emergency Call Service of the Los Angeles County Medical Association, DUnkirk 5-1581.

Scientific Exhibits

Main Lobby

Lacrimal Protein Patterns—Lacrimal protein patterns are made by electrophoresis on filter paper and scanned on 8½x11" paper. Actual patterns and scans from normal and abnormal patients will be shown.—Olive F. Erickson, M.D., San Francisco.

Visual Fields With Binocular Fixation—Tangent screen and special campimeter will be supplied, and methods depicted for the taking of visual fields with binocular fixation. Especially valuable for thorough routine checks and for patients who tend to be otherwise uncooperative.—L. F. Baisinger, M.D., Bakersfield.

Ambulatory Cervical Traction—Clinical material, charts, x-ray films are present to demonstrate "ambulatory" (walking) cervical traction in contrast to the conventional "stationary" methods. Also a live model will show its practical applicability.—E. F. Schmerl, M.D., Oakland.

Surgical Planing for Acne Scars—Exhibit describes the procedure of surgical planing for acne scars and other cutaneous defects by means of motor driven rotating wire brush, aided by a refrigerant (dichloro-tetrafluoro-ethane) sprayed on the skin to render it temporarily rigid and locally anesthetized. This refrigerant's advantages over ethyl chloride are demonstrated. The rapid epidermal regeneration following surgical planing is shown in photomicrographs. Contraindications and complications are discussed, and abrasion by sandpapering is compared with surgical planing. The results of treatment are shown by clinic photographs.—Samuel Ayres, III, M.D., Los Angeles; Ralph Luikart, II, M.D., Santa Barbara, and J. Walter Wilson, M.D., Los Angeles.

Electron Microscopy of the Cerebral Cortex—A series of annotated electron micrographs of normal cerebral cortex, and cortex after experimental injury. A study of the vascular bed of the brain is included.—Daniel C. Pease, Ph.D., Los Angeles, by invitation.

The Management of Congenital Dislocation and Dysplasia of the Hip Using a Special Splint—X-rays and photographs and models will illustrate the management of congenital dislocation and dysplasia of the hip using a special splint. The results in

some ninety cases will be shown by charts and diagrams.—Frederic W. Ilfeld, M.D., Beverly Hills.

Diseases of the Nails—Selecto slide—48 slides—16 charts—classifications—colored and black and white photographs.—Robert H. Harris, M.D., Long Beach.

The Physiologic Bases for the Evaluation and Treatment of the Ischemic Extremity—This exhibit will consist of a comparison of data obtained from the ischemic and normal extremity by the use of the elevation reactive hyperemia test for estimation of capillary pressures as well as confirmatory data obtained by plethysmograms and I¹³¹ removal from the skin and subcutaneous tissue, also arteriography. The Winsor plethysmograph will be demonstrated and photographs of other methods will be used for further elucidation. The relations of the observed phenomena to gangrene and rest pain will be shown.—R. S. Gilfillan, M.D., San Francisco.

Musculo-Skeletal Deformities of Hemophilia—X-rays and medical photography.—Ellis W. Jones, Jr., M.D., Los Angeles.

Collateral Coronary Circulation—The authors will demonstrate the effects of vasodilator and vasopressor drugs on the coronary circulation by volumetric measurements on the intact dog's heart. Methods of improving the collateral circulation will be shown.—Eliot Corday, M.D.; Lauros de Vera, M.D.; Herbert Gold, M.D., and Victor Satinsky, M.D., Los Angeles.

Why Early Treatment of Dysplasia So Important—Graphs of growth and photographs of x-rays.—William A. Craig, M.D., and Ralph B. Miller, M.D., Los Angeles.

Rotation Cobalt Teletherapy—Fluoroscopic-Television Alignment—A serial illustration of the physical techniques in patient planning and treatment as practiced in rotational therapy using cobalt-60 gamma radiation, for the treatment of cancer.—Henry L. Jaffe, M.D., Los Angeles.

Open Intra-Cardiac Surgery—Diagrammatic and photographic presentation of several different techniques being employed experimentally and clinically for the performance of open cardiac surgery under direct vision.—James V. Maloney, Jr., M.D., Los Angeles, by invitation.

Organizational Exhibits

C.M.A. Public Relations Department

C.M.A. Blood Bank Commission

C.M.A. Committee on Postgraduate Activities

C.M.A. Cancer Commission

California Physicians' Service

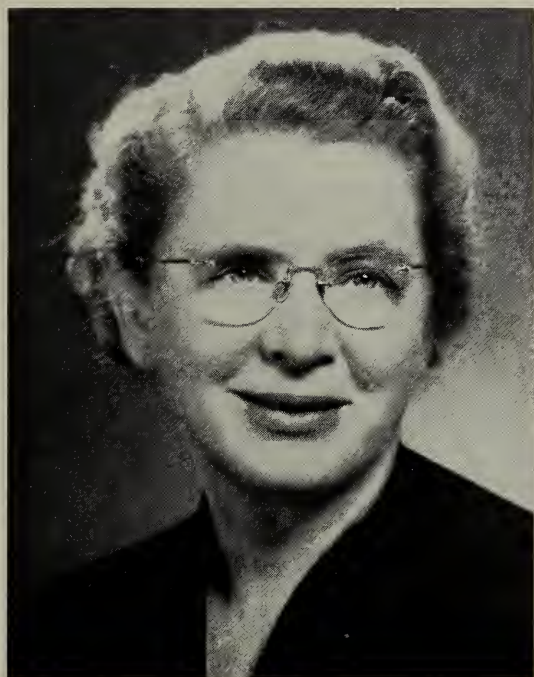
Audio-Digest Foundation

Los Angeles Physicians' Aid Association

WOMAN'S AUXILIARY to the CALIFORNIA MEDICAL ASSOCIATION

Twenty-Sixth Annual Convention, April 29 to May 1, 1956

Headquarters: Ambassador Hotel, Los Angeles



MRS. MATTHEW N. HOSMER, President



MRS. PAUL BLAISDELL, President-elect

Convention Chairman: MRS. BRIGHAM BERGSTROM

REGISTRATION

Main Lobby

Sunday, April 29—9:00 a.m. to 12:00 noon
1:00 p.m. to 4:00 p.m.

Monday, April 30—8:30 a.m. to 12:00 noon
1:00 p.m. to 4:00 p.m.

Tuesday, May 1—8:30 a.m. to 12:00 noon

SUNDAY, APRIL 29

8:00 a.m.—Executive Committee Breakfast Meeting, Garden Room.

9:30 a.m.—Annual Report of the Woman's Auxiliary by the President, Mrs. Matthew N. Hosmer, to the California Medical Association, House of Delegates, Embassy Room. Auxiliary members and doctors' wives are invited to attend.

10:30 a.m.—Pre-Convention Board Meeting, Lido Room.

6:00 to 8:00 p.m.—Reception honoring Mrs. Sidney J. Shipman, wife of the President of the California Medical Association, East and West Venetian rooms. All doctors and their wives are cordially invited.

MONDAY, APRIL 30

9:00 a.m.—Formal opening of the Twenty-sixth Annual Meeting of the Woman's Auxiliary to the California Medical Association, West Venetian Room. Mrs. Matthew N. Hosmer, President, presiding.

2:15 to 4:15 p.m.—Afternoon meeting, West Venetian Room.

8:00 p.m.—Dinner and ball in honor of the California Medical Association President, Dr. Sidney J. Shipman, Coconut Grove. Formal dress optional.

TUESDAY, MAY 1

9:00 a.m.—General Meeting of the Woman's Auxiliary to the California Medical Association, West Venetian Room. Mrs. Matthew N. Hosmer, President, presiding.

12:30 p.m.—Annual Luncheon in honor of Mrs. Matthew N. Hosmer, Mrs. Paul Blaisdell, Past State Presidents and Members of the State Advisory Board, Coconut Grove.

3:00 p.m.—Post-Convention Board Meeting, Dolphin Court. Mrs. Paul Blaisdell, presiding.

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Technical Exhibits

The California Medical Association is fortunate this year in having available the spacious rooms of the Ballroom, Boulevard Room and Sunset Room of the Ambassador Hotel for the technical exhibits. These quarters provide, in one area, adequate exhibit space and offer physicians the opportunity of visiting all exhibits with all possible ease.

Listed below are the exhibitors who will present their

products or services at this Centennial Meeting, together with a brief description of their exhibits. All physicians at the session are urged to visit these quarters and take this opportunity of reviewing both the new and the accustomed items which will be on display. Your visit will help repay the numerous exhibitors for their continued support of the Association.

ABBOTT LABORATORIES North Chicago, Illinois

Sunset Room

A new nonbarbiturate hypnotic, PLACIDYL, (Ethchlorvynol, Abbott) will be among the new products exhibited by Abbott Laboratories. Also shown will be NEMBUTAL-FILMTABS, (Nembutal and Reserpine, Abbott), a new sedative, tranquilizer and anti-hypertensive; DESBUTAL, new mood-improvement drug; and ERYTHROCIN Filmtabs (Erythromycin, Abbott), an antibiotic providing specific action against coccid infections and minimal risk of side effects. Abbott will also exhibit IBEROL Filmtabs containing intrinsic factor concentrate, B₁₂, iron and other vitamins; OPTILETS high-potency therapeutic multivitamins; VI-DAY-LIN, a homogenized mixture of seven vitamins; SELSUN, for control of seborrheic dermatitis; PENTOTHAL SODIUM, the intravenous anesthetic agent, and ABBOTT's complete line of intravenous solutions and equipment.

A. S. ALOE COMPANY Los Angeles

Sunset Room

We will have a display of our latest Steeline Treatment Room furniture featuring two new design tables, and our popular Pediatric Examining Table.

There will be qualified personnel on hand to answer your questions regarding the newest in the physical medicine field. Stop in and visit us in Booth No. 12.

ANNE ALT BRASSIERE CO., Inc. Compton

Sunset Room

Anne Alt Brassiere Company will exhibit Anne Alt Maternity-Nursing Brassieres and Disposable Nursing Bra Pads. Providing effective support during pregnancy and postpartum wear, this brassiere has a drop-flap for convenient nursing exposure. This flap is adjustable and can be worn loosely to prevent pressure on sensitive areas without adversely affecting support provided by inner cup. Straps remain on shoulders and support is provided even when flap is lowered for nursing.

Disposable Nursing Bra Pads, highly absorbent, though not bulky, have a moisture proof film on one side to prevent secretion from penetrating. They are designed to be worn with the Anne Alt Brassiere and are sold at stores selling the garment.

AMERICAN STERILIZER COMPANY Erie, Pennsylvania

Sunset Room

We plan to exhibit our latest and improved models of 6" and 8" autoclaves, boiling type sterilizers, general room lights, examining light, and cabinet model sterilizers. Notice the additional loading capacity in our square auto-

claves. We will have single and double door cabinets. Our general room light is the latest on the market.

See the products manufactured to incorporate the finest technique in sterilization and surgical lighting. Our capable representative will be available at Booth No. 19 to show these products to you.

AMES COMPANY, Inc. Elkhart, Indiana

Boulevard Room

The Ames representatives, Messrs. Bernard Appel, Harold Tichner, and Thomas McKnight, will be on hand to discuss AMINET, a combination of Aminophylline and Pentobarbital in a newly developed nonreactive base which melts readily at body temperatures and quickly releases the active ingredients for rapid absorption. Highly effective in relieving the paroxysms of bronchial asthma and especially valuable with epinephrine-fast patients. Also of value in cardiac asthma, congestive failure, and as a diuretic and myocardial stimulant.

DECHOLIN and DECHOLIN SODIUM, a dehydrocholeretic of choice, will also be on display.

AYERST LABORATORIES New York, New York

Ballroom

All physicians are cordially invited to visit the Ayerst exhibit and discuss Premarin, Mysoline, Trilene or other Ayerst specialties which will be featured.

BABY DEVELOPMENT CLINIC Chicago, Illinois

Sunset Room

Baby Development Clinic, Booth No. 22, offers for use in teaching the following: Evenflo bottles and special nipples; formula method booklets for prenatal classes and well-baby conferences. Samples of Dial Soap and liquid, as well as literature regarding its use for scrub and prevention of industrial dermatitis are also available. Polio immunization record sheets on which parents may keep record of dates of "shots"; "Personality Charts," "So Little Time" and other charts are also on display. The literature offered is designed to supplement teaching instruction and provide answers to questions most asked by parents.

BANNER CROSS Belmont

Ballroom Foyer

"Importing West—World-wide Best." Superior pressure bandages and related specialties for treatment of varices, leg ulcers, phlebitis, etc.; fractures, burns; eczema; dermatitis; traumatic injury, etc. Postoperative treatment of veins and wounds. A "must" for all physicians.

Outstanding attractions: The Bandage that Breathes; Nonallergical plaster spreads; bandages with wider medical and patient acceptance; new types of artificial foams; nontoxic and inert, with dramatic resilience; specialized dressings. Lines medically perfect.

BARNES-HIND LABORATORIES, Inc. Sunset Room
Sunnyvale

TRANQUINAL—a nonbarbiturate, nonhypnotic sedative for daytime sedation.

PROBOLIC—a multivitamin preparation designed for geriatric use.

PROBOLIC OB—a multivitamin preparation specially designed for OB use.

PIPERONE SYRUP and TABLETS for treatment of pinworm and roundworm infections.

BARNES MEDICAL ARTS Bollroom
Berkeley

THE BORDEN FOOD PRODUCTS COMPANY Sunset Room
San Francisco

All members and guests are cordially invited to the Borden exhibit for a refreshing cup of Borden's Instant Premium Coffee.

Exciting new recipes, developed by your Borden home economists, will be available to the ladies, along with helpful, time-saving literature for the busy physician on Borden's Evaporated Milk and Borden's Instant Starlac.

BOYLE & COMPANY Sunset Room
Bell Gardens

Boyle & Company will display TRIVA, the modern 12-day treatment for vaginitis; OPIDICE, an adjunct in the management of obesity; The Hematinic Family—BOYLE THERAPEUTIC HEMATINIC (1 tablet daily for most anemias)—BOYLE LIQUID HEMATINIC (the taste assures its acceptance)—BOYLE HEMATINIC and BOYLE HEMATINIC with B₁₂; and PENTO DEL, the tandem-action sedative.

BURROUGHS WELLCOME & CO., Inc. Ballroom Foyer
Tuckahoe, New York

The extensive research facilities of 'B. W. & Co.,' both here and in other countries, are directed to the development of improved therapeutic agents and techniques. Also much basic theoretical work in our laboratories and in cooperation with internationally known institutions is contributing to the reservoir of fundamental medical knowledge.

Through such research 'B. W. & Co.' has made notable advances related to leukemia, malaria, diabetes, and diseases of the autonomic nervous system; and to antibiotic, muscle-relaxant, antihistaminic, and antinauseant drugs.

An informed staff at our booth will welcome the opportunity to discuss our products and latest developments with you.

ELDON H. CANRIGHT COMPANY, Inc. Sunset Room
Glendale

Featuring up-to-date prescription formulas in major fields of therapy.

CHICAGO PHARMACAL COMPANY Boulevard Room
Chicago, Illinois

CHIMEDIC products featured include: URISED, a time tested genito-urinary antiseptic tablet; TOLYPHY, the improved spasmolysis formula for a wide range of muscle relaxation;

CODISTAN, an effective expectorant and anti-spasmodic in the treatment of coughs and other conditions of the respiratory tract; plus a complete injectable line awaiting your inspection.

CIBA PHARMACEUTICAL PRODUCTS, Inc. Bollroom Foyer
Summit, New Jersey

A new type of exhibit used for the first time at this session. Animated, visual presentation of specific products of CIBA Original Research. A resume of datum compiled from clinical application.

SERPASIL—APRESOLINE: A Tranquilizer—Anti-hypertensive drug. Product of CIBA Original Research.

DORIDEN: A NONBARBITURATE Hypnotic and Sedative.

Ciba representatives will be in constant attendance to answer all questions regarding CIBA Products and to assist with requests from physicians.

THE COCA-COLA COMPANY Sunset Room
Atlanta, Georgia

Ice-cold Coca-Cola served through the courtesy and cooperation of the Coca-Cola Bottling Company of Los Angeles and The Coca-Cola Company.

CUTTER LABORATORIES Sunset Room
Berkeley

CUTTER LABORATORIES, Booth No. 38, pioneer in the field of electrolyte solutions, will feature their new product Polysal Elixir—an oral balanced electrolyte preparation. Also on display will be pediatric immunizing agents containing "Alhydrox" (aluminum hydroxide adsorbed) in providing our low dosage form. Human blood fractions—Hypertussis, Poliomyelitis Immune Globulin, Albumin and Parenogen—will also be on display.

In addition to our intravenous solutions line, we will show plastic blood bags and siliconized intravenous sets.

DARWIN LABORATORIES Sunset Room
Los Angeles

Heparin Sodium USP (Lipo-Hepin) in concentration and ampul size allowing a single daily injection for 24 hour anticoagulant effect regardless of the patient's weight. Product is ready to administer without prewarming and is up to one-half more economical.

Trypsin Solution and Salve (Trypto-Plex) and Dar-Zyme for topical proteolytic digestive effect on necrotic and nonviable tissue. Product is ready for use without mixing.

DESITIN CHEMICAL COMPANY Sunset Room
Providence, Rhode Island

DESITIN OINTMENT: The pioneer in external cod liver oil therapy. Indications: Diaper rash, slow healing wounds, burns of all degrees, lacerations, hemorrhoids and fissures.

DESITIN POWDER: A unique, dainty medicinal powder saturated with cod liver oil.

DESITIN HEMORRHOIDAL SUPPOSITORIES with COD LIVER OIL: Coats ano-rectal area with soothing, lubricating cod liver oil, gives prompt relief of pain, allays itching.

DESITIN LOTION: The original cod liver oil lotion, soothing, protective, mildly astringent and healing, in non-specific dermatitis, pruritus, poison ivy, etc.

DEVEREUX SCHOOLS

Santa Barbara

Large color photos of the school campus and leather, ceramic and jewelry items made by the children are featured in the Devereux Schools exhibit.

The Devereux Foundation offers 'tailor made' education for children who are unable to adjust themselves in the public schools—either because of emotional, academic or intellectual problems.

In a boarding school setting, the Devereux Schools offer The finest educational and clinical facilities, plus an outstanding staff of specialists to assist physicians to meet the needs of their school-age patients who are failing in their home communities.

Boulevard Room

The total revision represents a tremendous editorial task, which has involved, in addition to Britannica's own editorial staff, a great many noted contributors—scholars, experts, authorities in the respective fields. This is, truly, one of the most important Editions of Britannica.

THE DIETENE COMPANY

Minneapolis, Minnesota

Have YOU tasted MERITENE . . . the whole protein supplement that DOES taste good? Visit our booth, enjoy a MERITENE Milk Shake with its multiple nutritive values.

While you're there, review the Dietene Diet based on DIETENE Reducing Supplement. It provides the rare combination of low calories (1,000) with high intake of protein and all essential vitamins and minerals in an interesting, effective, SAFE weight reducing diet.

Boulevard Room

DOHO CHEMICAL CORPORATION

New York, New York

Doho Chemical Corporation is pleased to exhibit: AURALGAN, the ear medication for the relief of pain Otitis Media and removal of Cerumen; NEW OTOSMOSAN, the effective, nontoxic ear medication which is Fungicidal and Bactericidal (gram negative-gram positive) in the suppurative and aural dermatomycotic ears; and RHINALGAN, the nasal decongestant which is free from systemic or circulatory effect and equally safe to use on infants as well as the aged.

Mallon Chemical Corporation, subsidiary of the Doho Chemical Corporation, is also featuring: RECTALGAN, the liquid topical anesthesia, also for relief of pain and discomfort in hemorrhoids, pruritus and perineal suturing, and DERMOPLAST, in an aerosol freon propellant spray for fast relief of surface pain, itching, burns and abrasions. Also Obs. & Gyn. use.

Sunset Room

EATON LABORATORIES

Norwich, New York

For the treatment of *Trichomonas vaginalis* vaginitis and the accompanying secondary bacterial infections, we now have available Tricofuron Vaginal Suppositories and Powder.

Other products of interest are Furadantin for prompt results in urinary tract infections, in the form of tablets and as Furadantin Oral Suspension. Within 30 minutes after ingestion of this drug, the urine becomes strongly antibacterial; Furacin Soluble Powder for painless application to wounds and burns; Furacin Vaginal Suppositories for treatment of cervicitis and vaginitis and as an adjunct to cervico-vaginal surgery; Furacin Urethral Suppositories for painless therapy of urethritis, and Furaspor Cream for rapid control of dermatomycoses.

Ballroom

ENCYCLOPAEDIA BRITANNICA

Los Angeles

We take pride in announcing the new edition of Encyclopaedia Britannica; the oldest the most honored and the most widely read reference work in the English language.

Sunset Room

ENDO PRODUCTS, Inc.

Richmond Hill, New York

Endo Products, Inc., representatives will be in attendance to discuss our two leading antitussive products . . . HYCODAN for the regular type cough, and HYCOMINE SYRUP for the allergic type cough. PERCODAN TABLETS for the relief of all moderate pain where you would otherwise use Aspirin Compound (A.P.C.) and Codeine.

Ballroom Foyer

CHARLES O. FINLEY & CO.

Los Angeles

Representatives of Charles O. Finley & Co., administrators of the California Medical Association group disability insurance program, will be on hand to describe the program to eligible members and to answer your questions. You are invited to come in, sit down and relax.

Sunset Room

C. B. FLEET COMPANY

Lynchburg, Virginia

During the past fifty years PHOSPHO-SODA (FLEET) has been a symbol of elegance in sodium phosphate medication. FLEET ENEMA DISPOSABLE UNIT—an enema solution of Phospho-Soda (Fleet)—is a worthy companion product. The single use unit simplifies and assures satisfying preparation for proctoscopy and as a routine enema it is a boon to the hospitalized patient.

Boulevard Room

FOREMOST DAIRIES, Inc.

San Francisco

Foremost Dairies' booth features its new process evaporated milk. The Foremost "fresh" process represents the first major improvement in evaporated milk manufacturing in over 50 years. Foremost is equal nutritionally to other brands of evaporated milk. Flash sterilized in seconds, cooled in seconds and canned aseptically, Foremost has a fresher flavor and aroma and white color. Fortified with Vitamin D and Curd Tension O, Foremost is recommended for infant feeding.

Boulevard Room

All registrants and guests at the C.M.A. Convention are invited to sample Foremost reconstituted as drinking milk at the booth. Literature is available.

E. FOUGERA & COMPANY

New York, New York

Boulevard Room

GEIGY PHARMACEUTICALS

New York, New York

Ballroom

MEDOMIN—a new kind of barbiturate—will highlight the GEIGY Exhibit. Indicated for safe, gentle hypnosis and reliable, sustained sedation. MEDOMIN is unique in that a 7-member ring is attached to the barbiturate radical. Also featured will be BUTAZOLIDIN, nonhormonal anti-arthritic; EURAX, antipruritis and scabicide; and STEROSAN, bacteriostat and fungistat.

GENERAL ELECTRIC X-RAY CORPORATION

Chicago, Illinois

Boulevard Room

GERBER PRODUCTS COMPANY

Fremont, Michigan

WHEN MILK IS CONTRAINDICATED as the basic food for infants, Gerber "Meat Base Formula" can provide a nutritionally adequate replacement. It is well accepted and tolerated by infants of all ages. Your Gerber detailman invites you to evaluate "Meat Base Formula" and the complete line of supplementary baby foods.

You are also invited to review new editions of Gerber baby care and adult special diet booklets. Each is designed especially for distribution by physicians. Each provides noncontroversial information in simple, easy-to-understand language. The service is complimentary.

Ballroom

GREAT BOOKS OF THE WESTERN WORLD

Los Angeles

Boulevard Room

Great Books of the Western World is a 54-volume publication including 443 works of 74 authors from Homer through Freud (all 14 of these works are in their entirety) and including the fabulous SYNTOPICON, the idea-index that operates in the field of word-definitions and as the Encyclopaedia does in the field of facts. Production of the set occupied the work of as many as 100 scholars chiefly engaged on the SYNTOPICON, over a period of eight years, at a cost of over \$2,000,000.

H. J. HEINZ COMPANY

Pittsburgh, Pennsylvania

Boulevard Room

What's New??? These Heinz Varieties—

Strained Foods: Bananas; Creamed Spinach; Macaroni, Tomatoes, Beef and Bacon; Split Peas—Vegetables and Bacon; Egg Yolk.

Junior Foods: Creamed Carrots; Teething Biscuit; Green Beans and Potatoes; Junior Dinner—Vegetables and Lamb; Junior Dinner—Vegetables and Liver.

All Heinz Baby Foods are glass packed except Strained Orange Juice, Teething Biscuits and four Pre-Cooked Cereals.

Literature—Booklet for Mothers "A Feeding Guide for a Healthy Happy Baby"—And for you—Nutritional Data.

HOFFMANN-LA ROCHE, Inc.

Nutley, New Jersey

Ballroom

NOLUDAR is a new, *nonbarbiturate* hypnotic which provides effective relief of insomnia and tension states. NOLUDAR is so well tolerated that side effects such as nausea, vomiting, and dizziness, are rarely, if ever experienced with therapeutic doses. NOLUDAR is available in scored tablets of two strengths, 50 mg. and 200 mg., and in a cordial-flavored elixir, 50 mg. per teaspoonful.

HOLLAND-RANTOS COMPANY, Inc.

New York, New York

Ballroom

Physicians interested in Medical Contraception are invited to discuss with H-R representatives latest information on laboratory and clinical data concerning efficacy of KOROMEX products. Also featured will be NYLMERATE Jelly and Antiseptic Solution Concentrate—trichomonocidal, fungicidal, bactericidal—and new HOLLANDEX medicated skin ointment.

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

Chicago, Illinois

Sunset Room

BETASYAMINE—A balanced combination of precursor substances supplying the essential components for the physiologic formation of phosphocreatine.

BETASYAMINE . . . *In the Anxiety-Tension-Fatigue Syndrome.*

Because BETASYAMINE acts to step depleted phosphocreatine levels up to normal values, it performs ideally to restore and maintain the dynamic energy balance. In a clinical study of 400 patients with anxiety-tension-fatigue, a consistently rapid rise in body energy was observed following BETASYAMINE therapy.

TPN—A tyrosine compound of precursor substances supplying the essential components for the physiologic formation of epinephrine.

TPN—*In Allergic Manifestations.*

It is a well-established fact that some of the amino acids act as precursors of potent physiological amines within the body. Tyrosine displays this action in a marked degree.

IRWIN, NEISLER & COMPANY

Decatur, Illinois

Sunset Room

Dextro-amphetamine tannate (Synatan) is now available. This new complex molecule releases amphetamine evenly and uniformly through controlled ionic exchange, thus, the smooth, prolonged action is inherent in the compound itself.

Your Neisler exhibit representative will be pleased to supply detailed information about this basic amphetamine improvement.

JACKSON-MITCHELL PHARMACEUTICALS, Inc.

Culver City

Boulevard Room

Jackson-Mitchell Pharmaceuticals, Inc., are exhibiting MEYENBERG EVAPORATED GOAT MILK, MEYENBERG POWDERED GOAT MILK, the natural substitute milk in cow milk allergies, and Hi-Pro, a high protein, low fat, powdered cow's milk.

Chilled, refreshing Goat Milk is being served so you can taste its pleasant flavor.

New literature on all products is available.

KELLOGG COMPANY

Battle Creek, Michigan

Sunset Room

The Kellogg Company will feature Kellogg's *Special K*. This entirely new ready-to-eat high protein cereal is richer in concentrated high-quality protein than any other generally used cereal, and has in addition notable vitamin and mineral values. Our representatives will be happy to answer questions about *Special K* . . . and all other Kellogg cereals which will be on display.

LEDERLE LABORATORIES

New York, New York

Ballroom

You are cordially invited to visit the Lederle booth where our medical representatives will be in attendance to provide the latest information and literature available on our line.

Featured will be Achromycin, Incremin, Diamox, Vitamins, Pathilon, Varidase and many other of our dependable quality products.

ELI LILLY AND COMPANY

Indianapolis, Indiana

Sunset Room

You are cordially invited to visit the Lilly exhibit located in booths No. 26 and No. 27. The display will contain information on recent therapeutic developments. Lilly sales people will be in attendance. They welcome your questions about Lilly products.

LLOYD BROTHERS, Inc.
Cincinnati, Ohio

Sunset Room

RONCOVITE and DOXINATE, both original products of Lloyd research, will be featured at this display. Lloyd representatives will present the latest clinical studies on Roncovite, the first true hematopoietic stimulant as well as the complete story of Doxinate, the new nonlaxative method of preventing and treating constipation.

LOV-É BRASSIERE COMPANY
Hollywood

Sunset Room

LOV-E Brassiere Company invites you to view their complete line of custom-fitted brassieres, available in a range of 18 models of more than 500 size variations. These LOV-E models have been designed for specific breast conditions and are individually fitted by trained corsetiers in exact accordance with prescription instructions. The LOV-E line is featured in leading department stores and corset shops coast to coast. Our Special Representatives will be happy to supply further information or answer any questions.

M & R LABORATORIES
Columbus, Ohio

Ballroom

Current concepts in infant feeding stress the critical aspects of preventive care. Visit our booth at your convenience; your Similac Representative will be happy to discuss the physiologic role of Similac Powder and Similac Liquid in providing good growth, sound development and optimum clinical benefits. Reprints of current pediatric investigations and the latest M & R Pediatric Research Conference Reports are available.

MALTBIE LABORATORIES
Belleville, New Jersey

Boulevard Room

You are cordially invited to visit the Maltbie Exhibit to meet our representatives and discuss our ethical pharmaceutical products. Featured items will be DESENEX and SALUNDEK, the well-known fungicides; CHOLAN-HMB, for comprehensive biliary therapy; MALCOTRAN, the potent anticholinergic with wide margin of safety; and CALPURATE, for improved cardiac function and increased diuresis.

MARLYN COMPANY, Inc.
Los Angeles

Boulevard Room

You are cordially invited to visit the Marlyn Company booth. TEST-ESTRIN GERIATRIC will be featured, and a staff of representatives will be on hand to answer your questions on Marlyn Company products.

THE S. E. MASSENGILL COMPANY
Bristol, Tennessee

Sunset Room

A visit to the Massengill exhibit will provide you with interesting information on HOMAGENETS, a completely new concept in nutritional therapy. Additional unusual reports on the clinical application of ADRENOSEM, the systemic hemostat.

MEAD JOHNSON & COMPANY
Evansville, Indiana

Sunset Room

The new Deca vitamin family for the vital first decade of life will be exhibited by Mead Johnson & Company in booth No. 13. Included in the new Deca family of vitamin specialties are: Deca-Vi-Sol, for dropper dosage, a fruit

flavored solution for infants and toddlers; Deca-Mulcin, for teaspoon dosage, a pleasantly-flavored liquid for pre-school children of 2 to 6 years; and Deca-Vi-Caps, small, easily-swallowed capsules, for school-agers of 6 to 10 years. All three Deca vitamin specialties supply 10 nutritionally significant vitamins including A, C, and D, plus 7 important B vitamins.

MEDCO PRODUCTS COMPANY
Tulsa, Oklahoma

Sunset Room

Medco Products Company will be presenting at their booth their new development in the Ultra-Sound field, the Medco-Sonlator. Everyone should see this instrument before making a decision on Ultra-Sound equipment. Also they will be showing their complete line of other current instruments and Medcolators.

THE MEDICAL PROTECTIVE COMPANY
Fort Wayne, Indiana

Ballroom

An unparalleled record of successfully fighting malpractice charges against doctors since 1899 distinguishes The Medical Protective Company from all others. Year in and year out 99.94 per cent of its policyholders have been completely covered under \$2,500. Exclusive application to the professional liability field makes this unique record possible. Mr. Gordon C. Jones, an authority in the professional liability field, will be in charge of The Medical Protective Company booth.

THE WM. S. MERRELL COMPANY
Cincinnati, Ohio

Sunset Room

Merrell representatives will discuss Meratran, a new and unique antidepressant that works subtly and smoothly through its action on the subcortical area of the brain. Your questions are solicited.

MILEX-FERTILEX CO.
Los Angeles

Boulevard Room

We invite your attention to our new cancer detection program. Among other items of interest are numerous products to aid fertility, and folding corrective pessaries.

MILLER SURGICAL COMPANY
Burbank

Boulevard Room

Sole manufacturers of Dr. Rudolph Gorsch's illuminated stainless steel rectal scopes, Proctologists, as well as other physicians interested in this field, will find it worth while to take a look. Other items of interest include an Electro-Scalpel for office, hospital and out-call use. It is thoroughly practical for all minor and light major surgery and comes complete with monopolar electrodes for cutting, coagulating, desiccating, dehydrating and fulgurating in general work. Also Miller ophthalmoscopes, reflecto-lite headlights and other illuminated and magnifying diagnostic units which have attracted the attention of so many doctors in general practice as well as in special fields.

THE NATIONAL DRUG COMPANY
Philadelphia, Pennsylvania

Sunset Room

The National Drug Company presents products of original research at booth No. 23. These "National" specialties include Parenzyme Intramuscular Trypsin, the direct, anti-edema, anti-inflammatory agent which has set new standards for the rapid and effective treatment of traumatic edema and acute inflammation. Parenzyme Intra-

muscular Trypsin is especially valuable in traumatic wounds, skin ulcers, ophthalmic inflammations, thrombophlebitis and phlebothrombosis. Hesper-C represents a striking advance in the therapy of habitual abortion. Its use in one series of habitually aborting patients achieved a fetal salvage of 95 per cent. AVC Improved, effective in trichomonal, bacterial and monilial vaginal infections, is also featured.

NEPERA CHEMICAL CO., Inc.
Yonkers, New York

Ballroom

THE NETTLESHIP COMPANY
Los Angeles

Sunset Room

Administrators of professional liability and group accident and health programs for eight County Medical Associations in Southern California. Qualified representatives available to discuss problems pertaining to hospital or individual professional liability coverage, accident and health insurance, or other types of insurance.

Literature, which will assist in the prevention of claims and various forms to be used to protect, as far as possible, against malpractice claims.

ORGANON, Inc.
Orange, New Jersey

Sunset Room

Physicians are cordially invited to visit the Organon booth where Cortrophin-Zinc and Wigraine will be exhibited. Cortrophin-Zinc is Organon's new long-acting aqueous corticotropin (ACTH) which provides therapeutic ACTH activity for periods of 1-3 days after a single injection of 40 U.S.P. units. It requires no pre-heating and may be injected through a 24 gauge needle and insulin syringe. Wigraine is Organon's new complete therapy for migraine headaches. It contains in each rapidly disintegrating tablet ergotamine tartrate and caffeine, belladonna alkaloids, and acetophenetidin to treat all phases of a migraine attack. Literature and samples will be available and the Organon representative will be happy to answer any questions regarding Organon products.

ORTHO PHARMACEUTICAL CORPORATION

Raritan, New Jersey

Sunset Room

ORTHO cordially invites you to booth No. 51 where the well known line of obstetrical and gynecological pharmaceuticals will be on display. Particular emphasis will be placed on Ortho preparations for conception control. Ortho representatives will be on hand to offer pertinent information on their products.

PARKE, DAVIS & COMPANY
Detroit, Michigan

Sunset Room

Medical service members of our staff will be in attendance at our exhibit for consultation and discussion of various products of particular interest to members of the Association. Important specialties, such as Penicillin S-R, Benadryl, Chloromycetin, Ambodryl, Dilantin Suspension, Vitamins, Oxyceel, Milontin, Amphetadase, Thrombin Topical, etc., will be featured. You are cordially invited to visit our exhibit.

THE PELTON & CRANE COMPANY
Charlotte, North Carolina

Boulevard Room

Why fear cross-infection when it is so simple to autoclave all materials right in your own office? Pelton Autoclaves are fast, simple to use, economical and efficient.

All materials including instruments, dressings, solutions and rubber goods may be sterilized while you are examining your patient. Materials are rendered sterile and dry, ready for immediate use.

Pelton Autoclaves are the only portable models that may be used as dry heat sterilizers. This is an exclusive feature.

Visit booth No. 80 and see the three sizes of Pelton Autoclaves demonstrated.

PERSON & COVEY
Glendale

Ballroom Foyer

We plan to display Hyperloid and Hydral.

Our representatives will be on hand to explain these products.

PET MILK COMPANY
San Francisco

Boulevard Room

Pet Milk's display will feature both their Pet Instant Nonfat Dry Milk and Pet Evaporated Milk. Representatives will be pleased to discuss these two products and also the many time-saving Pet Milk services available to physicians. Samples of their Instant Nonfat Dry Milk will be served and miniature Pet Milk cans will be offered to physicians visiting their display.

PICKER X-RAY
Los Angeles

Sunset Room

The new Century II Unit with "Anatomic Control" will be displayed. New additions to the accessory line will be available for inspection.

PURDUE FREDERICK COMPANY
New York, New York

Sunset Room

The Purdue Frederick Company will feature: SENOKOT—new non-bulk, non-irritating, highly palatable constipation corrective acting selectively on the parasympathetic (Auerbach's) plexus in the large bowel, physiologically stimulating the neuromuscular defecatory reflex to reproduce natural bowel function; PRE-MENS—the multidimensional premenstrual tension therapy, correcting water retention, hypoglycemia and decreased protein metabolism characterizing this syndrome; COLPOTAB—a proven highly effective Tyrothricin trichomonocidal; and CHLOROGIENE—a hygienic douche formulation will also be presented.

R. J. REYNOLDS TOBACCO COMPANY
Winston-Salem, North Carolina

Ballroom

Welcome to the R. J. Reynolds Tobacco Company Exhibit!

You are cordially invited to receive a cigarette case (monogrammed with your initials) containing your choice of CAMEL, CAVALIER King Size, or WINSTON, the distinctive new king size filter cigarette.

A. H. ROBINS COMPANY, Inc.
Richmond, Virginia

Boulevard Room

Physicians attending the meeting of the California Medical Association are extended a cordial invitation to visit the exhibit of the products of the A. H. Robins Co. Experienced medical representatives will be in attendance to welcome you and answer inquiries relative to any of Robins' prescription specialties.

ROGER JESSUP FARMS
Glendale

Sunset Room

ROGER JESSUP CERTIFIED MILK. Exhibiting the feeding program and painstaking care taken to produce the finest milk obtainable directly from California's largest milking herd.

Pure Guernsey and Holstein milk, unheated and unchanged, for the particular doctor's prescription.

SANBORN COMPANY
Cambridge, Massachusetts

Ballroom

Featured at the Sanborn Company booth No. 73 will be a continuous demonstration of the new Sanborn Viso-Scope, a 5 inch cathode ray oscilloscope, specially designed for use with the Sanborn direct-writing electrocardiographs, such as the famous Viso-Cardiette—as well as with more elaborate recording systems used in the research laboratory:

The Viso-Cardiette itself will also be prominently displayed, as will the popular Sanborn Metabulator. In addition full data will be available on Sanborn 1, 2 and 4-channel direct-writing recording systems; The Twin-Beam photographic recorder for simultaneous phonocardiography; the Electromanometer, for physiologic pressure measurements; and other Sanborn equipment for cardiovascular diagnosis and research.

SANDOZ PHARMACEUTICALS
San Francisco

Boulevard Room

Well informed representatives will be in attendance to explain the properties of several Sandoz products. The exhibit will feature Cafergot (oral) and Cafergot PB (rectal) for the treatment of migraine; Belladenal Space-tabs, a most potent natural antispasmodic and sedative for around-the-clock therapy; Fiorinal for tension headache and Plexonal, an ideal hypnotic.

W. B. SAUNDERS COMPANY
Philadelphia, Pennsylvania

Ballroom

Among the most useful of 1956 books for the practicing physician are: Hinshaw & Garland: Diseases of the Chest; Current Therapy 1956; Sodeman: Pathologic Physiology, 2nd edition; Bland: Fluid Balance, 2nd edition; Wolff: Electrocardiography, 2nd edition; and Laughlin: Neuroses. These will be displayed along with our standards such as: Cecil-Loeb: Textbook of Medicine; Nelson: Pediatrics; Dorland: Dictionary; and the ever popular Medical, Surgical, and Pediatric Clinics of North America.

SCHERING CORPORATION
Bloomfield, New Jersey

Boulevard Room

A cordial invitation is extended to the members of the California Medical Association to visit the Schering exhibit, booth No. 102. The entire exhibit will be devoted to METICORTEN and METICORTEONE the new corticosteroids for the treatment of rheumatoid arthritis, intractable asthma and other so-called collagen diseases. Extensive clinical and laboratory data demonstrating certain advantages of these new steroids over cortisone and hydrocortisone are shown.

JULIUS SCHMID, Inc.
New York, New York

Boulevard Room

An interesting and informative exhibit featuring RAMSES Flexible Cushioned Diaphragm; RAMSES Vaginal Jelly; VAGISEC jelly and liquid, two new products embodying

"Carlendacide," the recent development of Carl Henry Davis, M.D., and C. G. Grand for vaginal trichomoniasis therapy; and XXXX (Fourex) Skin Condoms, RAMSES and SHEIK Rubber Condoms for the control of trichomonal reinfection.

G. D. SEARLE & CO.
Chicago, Illinois

Boulevard Room

You are cordially invited to visit the Searle booth where our representatives will be happy to answer any questions regarding Searle Products of Research.

Featured will be Mictine, the new safe, nonmercurial oral diuretic; Vallestiril, the new synthetic estrogen with extremely low incidence of side reactions; Banthine and pro-Banthine, the standards in anticholinergic therapy; and Dramamine, for the prevention and treatment of motion sickness and other nausea.

SHARP & DOHME
Philadelphia, Pennsylvania

Ballroom

The Sharp & Dohme exhibit presents highlights on steroid therapy featuring 'Deltra,' 'Hydeltra,' and related adrenal cortical steroid preparations in endocrine disorders, collagen diseases, respiratory allergies, eye diseases and skin conditions. Expertly trained personnel will be pleased to discuss new dosage forms, new indications, and the latest summaries of advanced clinical reports in this field.

SIMILAC
Columbus, Ohio

Ballroom

See write-up under M & R Laboratories.

SMITH, KLINE & FRENCH LABORATORIES
Philadelphia, Pennsylvania

Boulevard Room

The S.K.F. booth will feature the latest clinical information about THORAZINE (chlorpromazine, S.K.F.) and its many varied uses in nausea, vomiting and hiccups; anxiety and tension states; alcoholism; intractable pain; behavior disorders in children; surgery and obstetrics; senile agitation; and the emotional stress associated with certain somatic conditions.

E. R. SQUIBB & SONS
New York, New York

Boulevard Room

J. W. STACEY, Inc.
San Francisco

Ballroom Foyer

Stacey's, established over a quarter of a century ago, provides those in the West with an efficient source for medical books of all publishers. At booths No. 10 and No. 11 you will find displayed the latest in medical literature. You are cordially invited to browse at your leisure.

STAYNER CORPORATION
Berkeley

Ballroom Foyer

Stayner Corporation hopes that your attendance here at the California Medical Association will be enjoyable and pleasant.

At booth No. 1 our representatives will be happy to see you and to discuss any of the some 120 products of our manufacture. Stayner will feature several new products which have proved of interest to the medical profession.

A new brochure on the importance of "Potassium Therapy in Medicine and Surgery" is available. To meet

- the growing awareness of the need of more adequate potassium replacement therapy, Stayner has developed a 15 grain (1-gm.) "timed" enteric coated tablet—"PCS-15"—for convenience of administration and prescribing.
- STUART COMPANY** Sunset Room
Pasadena
- The Stuart Company will feature STUART FORMULA in their display. Literature and samples of other leading Stuart products will also be available.
- SWIFT & COMPANY** Sunset Room
Chicago, Illinois
- The new improved flavor and texture of Swift's Meats for Babies & Juniors will be the keynote of the Swift & Company exhibit. You are cordially invited to discuss this new development in the originator brand of all-meat product for infants with the Swift representative. Clinical research literature is available.
- THURSTON LABORATORIES, Inc.** Boulevard Room
Los Angeles
- Thurston Laboratories will show "Sed-Ems," a safeguarded barbiturate which cannot be taken in overdose. "Sed-Ems" contain a small amount of Ipecac in each capsule, which in small doses, acts as a stomachic and promotes the absorption and efficacy of the barbiturate. In overdose, the ingested Ipecac acts as an emetic, and the barbiturate is expelled before a dangerous amount can be absorbed.
- Thurston Laboratories will also show "Improved Am-itin," a high-potency Ascorbic acid tablet potentiated with Bioflavonoids. These Bioflavonoids are factors from both Orange and Lemon sources effective against capillary fragility.
- U. S. VITAMIN CORPORATION** Boulevard Room
New York, New York
- Our exhibit will feature ARLIDIN, a new vasophoric, brand of Nylidrin HCl. ARLIDIN, a pharmacologically active sympathomimetic drug, provides prolonged vasodilation, increases cardiac output and peripheral blood flow. ARLIDIN is indicated for treatment of a wide range of functional and obliterative peripheral vascular disorders.
- Professional samples and literature will be distributed by our sales representatives on our complete line of nutritional specialties.
- THE UPJOHN COMPANY** Ballroom
Kalamazoo, Michigan
- Members of the medical profession are invited to visit the Upjohn booth where members of the Upjohn Company professional detail staff are prepared to discuss subjects of mutual interest.
- WALKER LABORATORIES, Inc.** Boulevard Room
Mount Vernon, New York
- PRECALVIN, PRECALCIN LACTATE, BACIMYCIN OINTMENT, ADCETS and HEDULIN will be displayed at this exhibit. PRECALCIN LACTATE is the phosphorus-free comprehensive multivitamin-mineral formula with "built-in" antianemia factors for use during pregnancy. HEDULIN is the relatively safe oral anticoagulant described in recent papers and complete reprint portfolios will be available to all registered physicians.
- WALTERS SURGICAL COMPANY** Boulevard Room
Los Angeles
- Latest furniture for use in examining rooms as well as electrocardiographs and x-ray equipment. There is also a display of the latest physiotherapy equipment including ultra-sound units.
- WARNER-CHILCOTT LABORATORIES** Boulevard Room
New York, New York
- A visit to the Warner-Chilcott booth will pay dividends, especially in the interests of your cardiovascular patients. The company is featuring two "clinically tested and proven agents": One to help you prevent attacks of angina pectoris; the other, the most potent drug currently available for reduction of blood pressure in hypertensive patients.
- WESTERN SURGICAL SUPPLY COMPANY** Boulevard Room
Los Angeles
- Physicians and surgeons supplies of all kinds, including furniture, dressings, laboratory supplies, etc.
- WESTWOOD PHARMACEUTICALS** Sunset Room
Buffalo, New York
- Westwood will display Gentia-Jel the only effective gentian violet jelly you can prescribe for self treatment by the patient at home. Eliminates messy office treatments which often stain your furniture and clothing.
- Lowila Cake, the only completely soapless skin cleanser, in cake form, available to your allergic or dermatitic patients whenever soap is contraindicated. Obtain a Lowila Cake from the Westwood Booth for your own personal use.
- WHITE LABORATORIES, Inc.** Sunset Room
Kenilworth, New Jersey
- Stimulate appetite—improve muscle tone—speed convalescence through a more efficient utilization of protein. "Correct proportion of amino acids to each other in the diet is more important than total protein intake." White's L-lysine preparations—LACTOFORT, CEROFORT TABLETS and CEROFORT ELIXIR—raise milk, cereal and vegetable proteins to high values.
- WINTHROP LABORATORIES** Ballroom
New York, New York
- ALEVAIRE: Nontoxic inhalant which thins sticky pulmonary secretions in bronchitis, bronchiectasis, and neonatal asphyxia.
- THEOMINAL R.S.: (Theominal with Rauwolfia serpentina), an alliance of the classic and contemporary in antihypertensive compounds. Theominal R.S. combines the vasodilator and myocardial stimulant actions of theobromine and Luminal with the moderate central hypotensive effect of Rauwolfia serpentina. Gentle sedation calms the patient and a feeling of "relaxed well being" is established. Headache and vertigo disappear as the blood pressure and pulse rate are reduced gradually.
- WOODSIDE ACRES** Boulevard Room
Redwood City
- Woodside Acres Hospital is a facility designed and built exclusively for the treatment of alcoholism by use of the Conditioned Response Therapy with supportive psychological therapy.

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House of Delegates—53rd Annual Session

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Albert C. Daniels, San Francisco.....	Secretary-Treasurer
Dwight L. Wilbur, San Francisco.....	Editor
Francis E. West (1958).....	Councilor 1st District
Omer W. Wheeler (1956).....	Councilor 2nd District
H. Clifford Loos (1957).....	Councilor 3rd District
E. E. Wadsworth, Jr. (1958).....	Councilor 4th District

Robert O. Pearman (1956).....	Councilor 5th District
Donald C. Harrington (1956).....	Councilor 6th District
James H. McPharlin (1958).....	Councilor 7th District
Samuel R. Sherman (1956).....	Councilor 8th District
Donald D. Lum (1957).....	Councilor 9th District
Warren L. Bostick (1958).....	Councilor 10th District
Ralph C. Teall (1956).....	Councilor 11th District
Arthur A. Kirchner (1956).....	Councilor-at-Large
T. Eric Reynolds (1956).....	Councilor-at-Large
Arthur E. Varden (1957).....	Councilor-at-Large
Ivan C. Heron (1957).....	Councilor-at-Large
Hollis L. Carey (1958).....	Councilor-at-Large
Edward C. Rosenow, Jr. (1958).....	Councilor-at-Large

ELECTED DELEGATES (297)

<i>Delegates</i>	<i>Alternates</i>
Alameda-Contra Costa County (25)	
Allen, Dorothy M.	Bartlett, J. C.
Allington, Herman	Benson, K. W.
Attwood, C. J.	Brode, William
Baxter, Philip N.	Carson, A. B.
Clausen, Edwin	DeVoe, Robert
Crockett, H. C.	Due, Floyd
Crum, R. Abbott	Ellis, Grant
Dodds, Donald	Fornoff, Homer
Dozier, Thomas J.	Harms, Herbert E.
Dugan, David	Hart, Charles
Fraser, L. H.	Harvey, Harold
Gadwood, Bernard B.	Hoskins, H. Dean
Graeser, James B.	Irvine, George S.
Hadden, Malcolm	Kerns, Claude L.
Henderson, Ernest W.	Lamb, Gordon R.
Hudson, Charles	Langstroth, Lovell, Jr.
Jones, William G. A.	Loe, Harris D.
Kaiser, William	Mason, John E.
Kern, Max	Morrison, John G.
Leet, Robert S.	Pfefer, Lionel
Long, Hubert E.	Royce, Byron
Maloney, Harold P.	Snook, Helen Jean
Richards, Dexter, Jr.	Spidell, Haydon J.
Shumaker, Paul	Stephens, Stuart
Truman, Stanley R.	Weeden, William
Butte-Glenn County (2)	
Elmendorf, Thomas	Chiapella, William C.
Lawrence, W. S.	Morgans, Philip M.
Fresno County (5)	
Adams, W. L.	Kass, Robert
Argo, W. L.	Patterson, E. A.
Howard, Arthur F.	Vaughan, Robert
Murray, John F.	Whitten, Richard
Smith, Robb	Winter, W. Gordon

<i>Delegates</i>	<i>Alternates</i>
Humboldt County (2)	
Olson, Fred A.	Eley, James S.
O'Neil, Francis H.	Poska, Theodore A.
Imperial County (2)	
Bostwick, Jack R.	Richardson, Gene T.
Tepper, Sidney M.	Thompson, Edgar A.
Inyo-Mono County (2)	
Curtis, C. C.	Denton, Robert W.
Mason, J. Lloyd	
Kern County (3)	
Ogden, Roderick A.	Ellis, John F.
Patrick, Robert A.	Forney, Robert
Vaughan, J. E.	Scherb, Robert E.
Kings County (2)	
Lassen-Plumas-Modoc County (2)	
Los Angeles County (116)	
Albaugh, Clarence H.	Abbey, John D.
Alsberge, Marden A.	Adams, Lawrence
Anhalt, James E.	Allin, John G.
Asher, Leonard M.	Andrews, Herbert J.
Ashley, Kennerley C.	Arkush, Albert S.
Ayres, Samuel, III	Askey, E. Vincent
Bailey, Wilbur	Bailey, Arthur T.
Bay, Max W.	Baker, Francis J.

Delegates

Bennett, Ralph L.
 Blackmun, Robert L.
 Boehme, Earl J.
 Boyer, Kenneth H.
 Bradford, Fred E.
 Breitman, Harry B.
 Brown, M. Hunter
 Buell, Arthur H.
 Bullock, Lewis T.
 Burns, Behle B.
 Burwell, L. C.
 Caruso, Tenero D.
 Cass, Donald
 Clough, William C.
 Cole, Orville W.
 Conti, James G.
 Cook, Wells C.
 Cooper, Finis G.
 Cosgrove, Jay B.
 Craig, Lyle G.
 Crane, Edward H., Jr.
 Crane, Jay J.
 Cunnane, Philip J.
 Desimone, Leon O.
 Einstein, Robert A. J.
 Ellmore, Lewis F.
 Ewens, Frederic
 Ewing, John Paul
 Feinfeld, Arthur
 Fields, Jack
 Fisher, Robbin E.
 Foster, Vernon W.
 Gilbert, Wallace G.
 Gobbell, Willard M.
 Goodhill, Victor
 Gooel, Elmer F.
 Graham, William E.
 Haining, Robert B.
 Hamilton, John B.
 Heidenreich, William M.
 Helms, Robert W.
 Hoffman, Arthur M.
 Hoffman, Eugene F.
 Hohl, Elizabeth Mason
 Holland, Frank F.
 Horner, Howard E.
 Jensen, Arnold L.
 Johnson, Fordyce
 Kelso, Raymond W.
 Knox, Stuart C.
 Korn, Bernard J.
 Lambertson, E. R.
 Laughlin, T. Jackson
 LeValley, Thomas A.
 Levy, Charles C.
 Loopesko, Eugene
 Ludwig, J. Lafe
 Magan, W. P., Sr.
 Martin, Louis E.
 Mauer, Edgar F.
 McDonald, Angus C.
 Merchant, Edward B., Jr.
 Miller, Charles J.
 Morrow, James J.
 Mueller, Edward J., Jr.
 Nation, Earl F.
 Nugent, Maurice W.
 O'Connor, Joseph P.
 O'Neill, J. Norman
 Otto, Frank W.
 Parks, Floyd R.
 Pindell, Merl Lee
 Pheasant, Homer C.
 Pottenger, F. M., Jr.
 Prichard, Hubert J.
 Quinn, William F.
 Randall, Morton H.
 Regan, James F.
 Reyes, J. M. de los
 Rogers, Wilbur G.
 Rolf, Bruce B.
 Rosenbaum, Maurice M.
 Ruddock, John C.
 Sampson, J. Philip
 Schroeder, Ralph L.
 Semenov, Herman Z.
 Shaw, Gerald W.
 Shelton, Robert M.
 Shery, Kurt T.
 Short, J. Edward
 Smith, Eldon E.
 Smith, Gordon K.
 Sommer, Melvin L.
 Soper, H. Vern
 Stein, Justin J.
 Stern, Robert Leo
 Stokesbary, Delbert L.
 Tennon, William J.
 Todd, Malcolm
 Turner, Ewing L.
 Tyler, Edward T.
 Tyroler, Frederic N.

Alternates

Ballard, William R.
 Beckenbach, Madelene
 Beckner, George L.
 Beckner, Gordon B.
 Beers, Reid L.
 Berne, Clarence J.
 Bigler, Roscoe B.
 Bittner, Linus H.
 Blong, Peter H.
 Boyd, Harold
 Brayton, Donald
 Bumpus, L. Dudley
 Burns, James J.
 Byrne, Ralph V.
 Camp, John D.
 Cardey, Norman L.
 Carlson, Carroll C.
 Clay, Joseph Baker
 Cobb, Dudley M., Jr.
 Copp, Newton H.
 Cowley, Leonard L.
 Croft, Leonard E.
 Crowe, Harold E.
 Daniels, Samuel D.
 Darby, John S.
 Donath, Douglas
 Doty, G. Ellis
 Douglass, George H.
 Dueker, Howard W.
 Earl, Donald H.
 Eisenstein, Edward
 Farrell, Elliston
 Flentie, Edgar H.
 Foster, Percy A.
 Frishman, Andrew J.
 Garrisi, Joseph A.
 Gaspari, Frederic J.
 Gilfillan, Charles
 Glazier, McCleery
 Godwin, Robert W.
 Golenternek, Dan
 Goodman, Adrian B.
 Gray, Arthur S.
 Grubbs, William E.
 Hankins, J. W.
 Hansen, Phil
 Harvey, Bernard J.
 Hayes, Edward William
 Heckel, Donald Q.
 Hiemstra, Wybren
 Hoagland, Paul I.
 Hough, Joseph D.
 Huffman, L. Dale
 Hughes, Clifford M.
 Jones, Glen Ellis
 Kaftan, Ludwig L.
 Katz, Milton A.
 Kaufman, Reuben L.
 Kelley, Walter W.
 Kendig, Tom A.
 Knupp, Wilber S.
 Kredel, Richard A.
 Lange, Henry J.
 Leary, John H.
 LeMoncheck, Edward
 Linsman, Joseph F.
 Lloyd, O. Dale
 Luck, J. Vernon
 Macdonald, Ian
 Macdonald, William Alan
 Mack, Marvin A.
 Matlock, Richard A.
 McDonald, John E.
 McDowell, Allyn J.
 McNiel, Edwin E.
 Meyers, Marvin H.
 Miracle, John E.
 Moes, Robert J.
 Mortensen, Elmer S.
 Mulfinger, Carl L.
 Packer, George L.
 Parker, Joseph A.
 Pearson, George W.
 Pollock, William Frank
 Proctor, E. Ross
 Rabwin, Marcus H.
 Roberts, Chester L.
 Roe, Harold E.
 Rolland, Ward M.
 Schade, Frank F.
 Schaeffer, Richard C.
 Scott, Walter
 Seals, Percy William
 Smart, Reginald H.
 Smith, Earl H.
 Smith, Samuel N.
 Spatz, Jerome M.
 Stanton, Frank E., Jr.
 Strouse, Carl D.
 Thompson, Walter S., Jr.
 Thurber, Packard, Jr.
 Treusch, Jerome V.

Delegates

Wilson, Warren A.
 Wiltse, Leon L.
 Witherbee, Harold R.

Madera County (2)

Braun, Lester E.
 Weinberger, Herbert

Marin County (3)

Culmer, J. William
 Goebel, James
 Wagner, Dallas L.

Mendocino-Lake County (2)

Hill, Thomas P.
 Massengill, James B.

Merced County (2)

Carson, Samuel
 Fitzgibbon, C. C.

Monterey County (3)

Clark, Howard E.
 Englehorn, T. D.
 Mitchell, Allen

Napa County (2)

Barber, Dale E.
 Brignoli, Walter H.

Orange County (6)

Galbraith, Harold F.
 Gendel, Samuel
 Price, J. B.
 White, Ralph E.
 Whittaker, L. F.
 Wilson, L. E.

Grayson, Thomas L.
 Leininger, C. R.
 Smart, William R.
 Marchus, Donald B.
 Oliver, Wrenshall A.
 Donaldson, A. Norton
 Garrett, Robert T.
 Hanigan, Thomas E.
 Mason, Bernard
 Struve, Edgar E.
 Wickett, William H., Jr.

Placer-Nevada-Sierra County (2)

Joye, K. M.
 Tipton, G. D.

Riverside County (4)

Aikin, William
 Batzle, J. Harold
 Martin, Hugh H.
 Stone, H. H.

Abbott, Donald
 Halverson, Glen
 Humphrey, Norton R.
 Quick, E. D.

Sacramento County (7)

Berman, A. E.
 Dozier, Dave F.
 Grayson, Charles E.
 Kilroy, Dan O.
 Ogaard, A. T.
 Rovane, J. W.
 Yant, James H.

Chappell, G. E.
 Jones, Warren E.
 MacDonald, Frank A.
 Martin, J. W.
 Pope, Glenn A.
 Tainter, E. G.
 Wallerius, Raymond M.

San Benito County (2)

Sheldon, E. C.
 Young, D. G.

Haruff, John
 Jones, Peter

San Bernardino County (6)

Coughlin, John H.
 Hadley, Carl M.
 Martin, J. Needham
 Melone, Frank C.
 Pelkey, George L.
 Vargas, Roger A.

Carlson, Elmer
 Miano, Ben D. A.
 Ogden, Wendell L.
 Spelman, George M.
 Sprague, Charles
 Taylor, Leonard M.

San Diego County (13)

Hyde, Charles R.
 Isenhour, Roger C.
 King, Ralph M.
 MacLaggan, James
 Marlow, Arthur A.
 Martin, Worth L.
 Moore, A. E.
 Newman, Willard H.
 Ouer, Roy A.
 Robinson, Frank H.
 Rumsey, John M.
 Tancredi, Chester
 Telford, Joseph W.

Carpenter, Walter F.
 Fairchild, L. H.
 Hall, Winston C.
 Hanna, Curtis M.
 Hokr, William K.
 Knott, James I.
 Lauren, George P.
 LeDuc, Ector
 Maggio, Guy
 Marshall, Glenn L.
 Phalen, James R.
 Soldmann, W. T.
 Youel, Milo A.

San Francisco County (31)

Bender, William L.
 Birnbaum, Walter D.
 Bricca, C. R., Jr.
 Burnham, DeWitt K.
 Callaway, Claude P.
 Campbell, Donald M.
 Campion, George

Adams, John E.
 Bonfilio, Nicholas D.
 Cann, John E.
 Castro, Amos
 Clark, W. Dayton
 Cowan, John F.
 Franzi, Antonio J.

Delegates

Combs, Robert C.
Cox, Francis J.
Fenlon, Roberta
Garland, L. Henry
Gibbons, Henry III
Greene, W. Wallace
Herzog, George K., Jr.
Hinman, Frank, Jr.
Hosmer, Matthew N.
Lebo, Charles
Moffitt, Herbert C., Jr.
Noble, Charles A., Jr.
Olney, Mary B.
Richards, Victor
Rixford, Emmet L.
Rochex, Francis
Schaupp, John B.
Schaupp, Karl L., Jr.
Silvani, Henry L.
Sirbu, A. B.
Smith, Curtis E.
Talbott, Grace M.
Ward, Robertson
Williams, A. Justin

San Joaquin County (4)

Armanino, Louis P.
Benn, James J.
Mayo, John F.
Noetling, Paul R.

San Luis Obispo County (2)

Oberson, E. C.
Werbel, Ernest

San Mateo County (8)

Allen, James R.
Brownson, Bradley C.
Edwards, James S.
Fox, Norman C.
Haerem, Alf T.
Miller, A. G.
Shidler, Frederic P.
Smith, Harry F.

Armstrong, Charles D.
Bachman, Landon H.
Gray, Logan
Hedden, Alan D.
Holmes, Robert O.
Miller, Lewis R.
Novak, Frank J.
Thompson, William H.

Santa Barbara County (3)

Cord, Robert I.
Hill, Thurman K.
Reeves, David L.

Brown, Harry E.
Burgess, Leonard B.
Hammell, Max

Santa Clara County (10)

Brodovsky, Dan
Cox, John E.
Currlin, Albert R.
Davis, Burt
Dennis, Robert
Foster, Thomas N.
Fox, Leon P.
Houck, George H.
Morton, Paul V.
Snyder, J. Frederic

Barrette, Pierce C.
Boice, C. L.
Burchfiel, Robert
Cragin, Robert B.
Dahleen, Henry C.
Duisenberg, Charles E.
Elmore, Ernest F.
Meyer, Vincent S.
Olson, Ray N.
Waters, George W.

Santa Cruz County (2)

Newhall, Luther
Randall, Samuel B.

Barr, H. S.
Selzer, Ludwig

Alternates

Fraser, Alexander F.
Hand, Lee
Henry, Margaret
Hodges, Francis T.
Hurwitz, Samuel
Jacobs, Alvin H.
Long, J. Bradley
McKenzie, Roger B.
Musser, Don C.
Newsom, William A.
Olsen, Elwood R.
Palmer, Richard
Robson, George B.
Strange, Vance M.
Sumner, William A.
Thompson, James H.
Torassa, George L.
Trauner, Lawrence M.
Wagner, William
Washburn, William W.
Webb, Eugene
Winternitz, Carl
Woo, Henry B.
Zundell, J. LaMonte

Delegates

Buell, Walter
Kehoe, Julius M.

Anderson, Eugene V.
Thompson, Victor J.

Green, John W.
Johnson, Lionel

Norman, Frank W.
Robbins, R. Dee
Sharrocks, Horace F.

Hatch, Francis N.
Hiatt, R. Stewart
New, David J.

Alternates

Shasta County (2)

Nash, Louis
Ryan, Edward

Siskiyou County (2)

McGuire, James B.
Spomer, I.

Solano County (2)

Jones, F. Burton
O'Donnell, Bernard V.

Sonoma County (3)

Hanzlik, Harold
Lones, Frank E.
Zieber, R. L.

Stanislaus County (3)

Radeliff, Robert R.
Reimer, Frank
Treadwell, Robert R.

Tehama County (2)

Frey, R. G.
Townley, F. N.

Ingle, G. W.
Wood, O. T.

Tulare County (2)

Dungan, Vincent M.
Feldmayer, James E.

Ehrke, Albert A.
Jackson, Gordon L.

Ventura County (2)

Helbling, Franklin K.
Moore, J. W.

Huff, W. Cloyce
Nelson, James H.

Yolo County (2)

Kimbell, James
Pearson, C. Woodring

Nichols, Ray E.
Pye, Robert

Yuba-Sutter-Colusa County (2)

Parkinson, Stanley R.
Wisner, Francis P.

Belz, John F.
Billman, Howard

Past Presidents (18)

Ewer, Edward N.	1925
*Kinney, Lyell C.	1930
Harris, Junius B.	1931
Reinle, George G.	1933
Peers, Robert A.	1935
Wilson, Harry H.	1940
Molony, William R., Sr.	1942
Schaupp, Karl L.	1943
Goin, Lowell S.	1944
McClendon, Sam J.	1946
Cline, John W.	1947
Askey, E. Vincent	1948
Kneeshaw, R. Stanley	1949
Cass, Donald	1950
MacLean, H. Gordon	1951
Alesen, Lewis A.	1952
Green, John W.	1953
Morrison, Arlo A.	1954

*Deceased.

Reception

WOMAN'S AUXILIARY TO THE C.M.A.

SUNDAY, APRIL 29, 6 to 8 P.M.

East and West Venetian Rooms

Honoring Mrs. Sidney J. Shipman

All doctors and their wives are cordially invited

House of Delegates Agenda

1956 Annual Session

Embassy Room, Ambassador Hotel

Speaker.....James C. Doyle, Beverly Hills

Vice-Speaker.....Paul D. Foster, Los Angeles

Secretary.....Albert C. Daniels, San Francisco

FIRST MEETING

Sunday, April 29, 1956, at 9:30 a.m.

ORDER OF BUSINESS

1. Call to order.
2. Report of Committee on Credentials, and Organization of the House of Delegates.
3. Roll call.
4. Announcement and approval of Reference Committees.
 - (a) Committee on Credentials. (Delegates must register with the Committee.)
 - (b) Reference Committee on the Reports of Officers, the Council, the Commissions, and Standing and Special Committees. (Reference Committee No. 1.)
 - (c) Reference Committee on Finance, to review the reports of the Secretary-Treasurer and the Executive Secretary and to study and make recommendations to the House of Delegates on the budget submitted by the Council and the amount of dues for the ensuing year. (Reference Committee No. 2.)
 - (d) Reference Committee on Resolutions and New and Miscellaneous Business. (Reference Committee No. 3.)
 - (e) Reference Committee on Amendments to the Constitution and By-Laws. (Reference Committee No. 4.)
 - (f) Reference Committee on C.P.S. Business.
5. Address by President of the Woman's Auxiliary to the C.M.A.—Mrs. Matthew N. Hosmer, San Francisco.
6. Address by President Sidney J. Shipman—Presentation of 50-Year Awards.
7. Miscellaneous announcements by the Speaker. (Stenographic service to secure copies of resolutions, etc.)
8. Report of the President—Sidney J. Shipman.
9. Report of the President-Elect—Donald A. Charnock.
10. Report of the Speaker of the House of Delegates—James C. Doyle.
11. Report of the Vice-Speaker of the House of Delegates—Paul D. Foster.
12. Report of the Trustees of the California Medical Association—Sidney J. Shipman, President.
13. Report of the Secretary—Albert C. Daniels.
14. Report of the Treasurer—Albert C. Daniels.
15. Report of the Editor—Dwight L. Wilbur.
16. Report of the Executive Secretary—John Hunton.
17. Report of Legal Counsel—Peart, Baraty and Hassard.
18. Report of the Executive Committee—Ivan C. Heron, chairman.
19. Report of the Council—Donald D. Lum, chairman.
20. Reports of District Councilors.
21. Reports of Councilors-at-Large.
22. Report of C.P.S. Board of Trustees—Francis T. Hodges, president.
23. Reports of Commissions.
 - (a) Cancer Commission—John W. Cline.
 - (b) Commission on Medical Education—Edward C. Rosenow, Jr.
 - (1) Committee on Blood Banks—John R. Upton.
 - (2) Committee on Industrial Health and Rehabilitation—Jerome Shilling.
 - (3) Committee on Medical Education and Hospitals—Harold G. Trimble.
 - (4) Committee on Mental Health—H. L. Gartshore.
 - (5) Committee on Postgraduate Activities—E. C. Rosenow, Jr.
 - (c) Commission on Medical Services—Hollis L. Carey.
 - (1) Committee on Fees—Francis J. Cox.
 - (2) Committee on Indigent Care—Hollis L. Carey.
 - (3) Committee on Maternal and Child Care—Donald C. Harrington.
 - (4) Committee on Medical Economics—Emmet L. Rixford.
 - (5) Committee on Problems of the Aged—E. R. Lambertson.
 - (d) Commission on Professional Welfare—Joseph F. Sadusk, Jr.
 - (1) Committee on Health and Accident Insurance—Arthur A. Kirchner.
 - (2) Committee on Unlawful Practice of Medicine—Arlo A. Morrison.

- (3) Medical Review and Advisory Board—Joseph F. Sadusk, Jr.
- (e) Commission on Public Health and Public Agencies—Francis E. West.
 - (1) Committee on Military Affairs and Civil Defense—Justin J. Stein.
 - (2) Committee on Other Professions—Wayne Pollock.
 - (3) Committee on Rural and Community Health—Robb Smith.
 - (4) Committee on School Health—Albert C. Daniels.
 - (5) Committee on State Medical Services—Francis E. West.
 - (6) Committee on Veterans Affairs—Berthel H. Henning.
- (f) Commission on Public Policy—Dan O. Kilroy.
 - (1) Committee on Legislation—Dan O. Kilroy.
 - (2) Committee on Public Relations—Donald D. Lum.
- 24. Reports of Standing Committees.
 - (a) Auditing Committee—Ivan C. Heron.
 - (b) Committee on Scientific Work—Albert C. Daniels.
 - (c) Medical Executives Conference—John Hunton.
- 25. Reports of Special Committees.
 - (a) Committee on History and Obituaries—J. Marion Read.
 - (b) Delegates to the A.M.A.—Donald Cass.
 - (c) Physicians' Benevolence Committee—Axcel E. Anderson.
- 26. Old and unfinished business.
 - (a) Constitutional amendment.
- 27. New business.

SECOND MEETING

Wednesday, May 2, at 9:30 a.m.

ORDER OF BUSINESS

- 1. Call to order.
- 2. Supplemental report of Credentials Committee.
- 3. Roll call.
- 4. Secretary's announcement of Council's selection of place for the 1957 annual session.
- 5. Election of officers:
 - (a) President-elect.
 - (b) Speaker.
 - (c) Vice-speaker.
 - (d) District Councilors (three-year term):
 - (1) Second District—Omer W. Wheeler, Riverside (term expiring).
Second District—Imperial, Inyo, Mono, Orange, Riverside and San Bernardino Counties.
 - (2) Fifth District—Robert O. Pearman, San Luis Obispo (term expiring).
Fifth District—San Luis Obispo, Santa Barbara and Ventura Counties.
 - (3) Eighth District—Samuel R. Sherman, San Francisco (term expiring).
Eighth District—San Francisco County.

- (4) Eleventh District—Ralph C. Teall, Sacramento (term expiring).
Eleventh District—Alpine, Amador, Butte, Colusa, Eldorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo and Yuba Counties.
- (e) District Councilor (unexpired term):
 - (1) Sixth District—Donald C. Harrington, Stockton (incumbent by appointment, regular term to expire 1957).
Sixth District—Calaveras, Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin, Stanislaus, Tulare and Tuolumne Counties.
- (f) Councilors-at-Large (three-year terms):
 - (1) Arthur A. Kirchner, Los Angeles (term expiring).
 - (2) T. Eric Reynolds, Oakland (term expiring).
- (g) Delegates to American Medical Association:

Delegates and Alternates to the American Medical Association are elected for terms of two calendar years. The Delegates and Alternates to be elected at this meeting will serve for two calendar years starting January 1, 1957.

Incumbents:

 - (1) Leopold H. Fraser, Richmond (term expiring).
 - (2) E. Vincent Askey, Los Angeles (term expiring).
 - (3) Dwight L. Wilbur, San Francisco (term expiring).
 - (4) Donald Cass, Los Angeles (term expiring).
 - (5) J. Lafe Ludwig, Los Angeles (term expiring).
 - (6) R. Stanley Kneeshaw, San Jose (term expiring).
- (h) Additional Delegate to American Medical Association (new office). Term starts January 1, 1956.
- (i) Alternates to the American Medical Association:

Incumbents:

 - (1) C. J. Attwood, Oakland (alternate to Leopold H. Fraser).
 - (2) Donald A. Charnock, Los Angeles (alternate to E. Vincent Askey).
 - (3) James E. Feldmayer, Exeter (alternate to Dwight L. Wilbur).
 - (4) J. Norman O'Neill, Los Angeles (alternate to Donald Cass).
 - (5) H. Milton Van Dyke, Long Beach (alternate to J. Lafe Ludwig).
 - (6) Burt Davis, Palo Alto (alternate to R. Stanley Kneeshaw).
- (j) Alternate to the American Medical Association (unexpired term):

(Alternate to be elected for term of two calendar years starting January 1, 1956).
Henry Randel, Fresno, deceased (alternate to Frank A. Macdonald).
- (k) Additional Alternate to American Medical Association (new office). Term starts January 1, 1956.
- 6. Election of C.P.S. Trustees (three-year terms):

Report of C.M.A. Council as Nominating Committee.

Incumbents:

 - (a) Francis T. Hodges, San Francisco (not eligible for reelection).

- (b) Merlin L. Newkirk, Downey.
 - (c) Leon O. Desimone, Los Angeles.
 - (d) Edwin L. Bruck, San Francisco.
 - (e) Mr. Robert A. Hornby, San Francisco.
7. Announcement by Secretary.
Council's nominations of members of Commissions and Committees (for approval by the House of Delegates).
 8. Reports of Reference Committees:
 - (a) Report of Reference Committee No. 1 on Reports of Officers, the Council, Commissions, and Standing and Special Committees.
 - (b) Report of Reference Committee No. 2 on Reports of the Secretary-Treasurer, the Executive Secretary, and the budget and dues.
 - (c) Report of Reference Committee No. 3 on Resolutions and New and Miscellaneous Business.
 - (d) Report of Reference Committee No. 4 on Amendments to the Constitution and By-Laws.
 - (e) Report of Reference Committee on C.P.S. Business.
 9. Unfinished business.
 10. New business.
 11. Presentation of officers:
 - President*
 - President-elect*
 - Speaker*
 - Vice-speaker*
 12. Presentation of certificate to retiring president—Sidney J. Shipman.
 13. Approval of minutes. (Committee to edit.)
 14. Adjournment.

JAMES C. DOYLE, *Speaker*
ALBERT C. DANIELS, *Secretary*

PRESIDENT'S DINNER DANCE

MONDAY, APRIL 30

Cocoanut Grove, Ambassador Hotel, 8:00 p.m.

Formal dress optional

Tickets will be on sale in the Main Lobby

TWO GENERAL MEETINGS

MONDAY, APRIL 30, and TUESDAY MAY 1

Each Afternoon—2 to 5 p.m.

Embassy Room, Ambassador Hotel

PRE-CONVENTION REPORTS

Officers • Councilors • Committees • County Societies

REPORTS OF GENERAL OFFICERS

REPORT OF THE PRESIDENT

To the House of Delegates:

During the past two years it has been my privilege and pleasure to serve as your President-elect and President. In this period I have had the opportunity to visit all areas of California and to confer with the officers and members of the component county societies and discuss the problems confronting the profession as a whole.

I have also attended all meetings of the Council and the Executive Committee and have conferred with many of the committees and commissions in the Association.

In completing my term of elected office I would leave with you one thought which I believe should govern your selections of officers and other representatives at all times: That you choose your representatives with all consideration of the quality of the person and with the thought uppermost in your minds of maintaining the high quality of medical service which we all strive to achieve. Geographical and other considerations should be secondary.

To my many colleagues on the Council, in the House of Delegates and throughout the county societies, my thanks for their constant cooperation and devotion to their obligations. Without a wealth of such voluntary efforts, the Association would be impotent and would lose its meaning; with them we can hope to make even greater progress in the years to come.

Respectfully submitted,

SIDNEY J. SHIPMAN, *President*

REPORT OF THE PRESIDENT-ELECT

To the President and the House of Delegates:

The duties of the President-elect are prescribed by our Constitution as assisting the President. In this respect, it has been a great privilege to visit a number of our county societies, accompanied by members of the C.M.A. staff. In each of the communities we visited we were accorded a warm and sincere welcome. The interest expressed by the county societies, both large and small, certainly indicated a continued loyalty to C.M.A. and to the realistic and aggressive policies that have been outlined by the House of Delegates and the Council.

The tremendous population growth of our state, both urban and rural, has imposed new burdens upon our profession. That this new challenge is being met in all areas with energy and foresight is an indication of the strength and dedication of the physicians of California.

Respectfully submitted,

DONALD A. CHARNOCK, *President-Elect*

REPORTS OF SPEAKER AND VICE-SPEAKER OF THE HOUSE OF DELEGATES

To the President and the House of Delegates:

Your Speaker and Vice-Speaker have attended all Council and numerous other meetings throughout the year. We are both deeply grateful and appreciative of the honor bestowed

on us at our last House of Delegates meeting in San Francisco. We shall to the best of our abilities perform our duties honestly, wisely and in a spirit of humbleness.

Respectfully submitted,

JAMES C. DOYLE, *Speaker*

PAUL D. FOSTER, *Vice-Speaker*

REPORT OF THE PRESIDENT OF THE TRUSTEES OF THE C.M.A.

To the President and the House of Delegates:

The President of the California Medical Association is named each year as the President of the Trustees of the California Medical Association, a California nonprofit corporation. Under these conditions I have served as President of the corporation for the past year.

The corporation has held its annual meeting, as prescribed by law, and has reviewed and approved the routine transactions carried on during the last fiscal year. A report of the financial transactions and statement of condition as of June 30, 1955, appears in this issue under the report of the Treasurer. The corporation undertook no activities during the year except the receipt and maintenance of available funds.

Respectfully submitted,

SIDNEY J. SHIPMAN, M.D., *President*

REPORT OF THE SECRETARY

To the President and the House of Delegates:

The Council reelected the Secretary at the annual meeting in 1955. Since that time he has attended meetings of the Council and the Executive Committee, where he has edited the minutes after they had been prepared by the Executive Secretary with the aid of the Legal Counsel.

The Secretary is ex-officio chairman of the Committee on Scientific Work, which held two meetings to prepare for the 1956 annual session. The Secretary attended the A.M.A. Conference on Physicians and Schools in Chicago and has been active in sponsoring regional conferences of the same throughout California.

The attention of the members of the California Medical Association is called to the minutes of the Council and the Executive Committee, which are printed in the various issues of CALIFORNIA MEDICINE. It is strongly suggested that these minutes be read by all members.

Respectfully submitted,

ALBERT C. DANIELS, *Secretary*

REPORT OF THE TREASURER

To the President and the House of Delegates:

The report of the Treasurer is limited to the figures taken from the independent audit made annually by certified public accountants, John F. Forbes & Company.

The Treasurer holds office as Secretary-Treasurer but does not handle the Association's accounts or other fiscal duties,

outside of being called upon from time to time to add his signature to checks. The actual handling of accounts is done in the C.M.A. office by staff members.

The exhibits shown here are set forth in two parts. First is the balance sheet and income-expenditure account of the Trustees of the California Medical Association, a California

nonprofit corporation which serves as a holding company for assets accumulated by the Association. It is followed by the balance sheet and income-expenditure accounts of the California Medical Association.

Respectfully submitted,

ALBERT C. DANIELS, *Treasurer*

TRUSTEES OF THE CALIFORNIA MEDICAL ASSOCIATION
(A California Corporation)

EXHIBIT A

BALANCE SHEET, JUNE 30, 1955

ASSETS

CASH	\$ 43,536.63
GENERAL AND BENEVOLENCE FUND INVESTMENTS.....	1,180,000.00
TRUST FUND FOR CALIFORNIA MEDICAL ASSOCIATION EMPLOYEES.....	37,909.43
PREPAID INSURANCE	227.71
TOTAL	<u>\$1,261,673.77</u>

LIABILITIES

TRUST ACCOUNTS:	
Benevolence Fund	\$ 73,686.01
Morris Herzstein Bequest Fund.....	\$ 7,749.36
Total trust accounts.....	\$ 81,435.37
ENDOWMENT FUND	276.74
OTHER TRUST FUNDS.....	58,909.43
SURPLUS:	
Contributed surplus	\$882,915.99
Earned surplus, June 30, 1954.....	\$229,137.19
Less adjustment applicable to prior period.....	33.96
Earned surplus, June 30, 1954, adjusted.....	\$229,103.23
Net income for the year, Exhibit B.....	9,033.01
Total surplus	1,121,052.23
TOTAL	<u>\$1,261,673.77</u>

EXHIBIT B

STATEMENT OF INCOME FOR THE YEAR ENDED JUNE 30, 1955

INCOME—INTEREST ON BONDS.....	\$27,646.09
EXPENDITURES:	
Audit fee	\$ 340.78
Custodian fee	316.88
Miscellaneous	308.59
Total	966.25
BALANCE	\$26,679.84
ADD—THE EXCESS OF MATURITY VALUE OVER COST OF U. S. TREASURY BILLS AND BONDS, PURCHASED DURING THE YEAR, CHARGED TO THE INVESTMENT ACCOUNT TO REFLECT MATURITY VALUE OF THE TREASURY BILLS AND BONDS—NET.....	486.27
Total	\$27,166.11
OTHER CHARGES:	
Net premium on life and retirement insurance policies.....	\$15,133.10
Provision for the retirement or other benefit of an employee of an affiliated organization	3,000.00
REMAINDER—NET INCOME FOR THE YEAR.....	<u>\$ 9,033.01</u>

CALIFORNIA MEDICAL ASSOCIATION

EXHIBIT B—SCHEDULE 1

STATEMENT OF EXPENDITURES FOR THE YEARS ENDED JUNE 30, 1955, AND 1954, AND COMPARISON

ADMINISTRATION:	Year Ended June 30		Increase Decrease
	1955	1954	
Salaries:			
Administrative	\$ 34,288.36	\$ 34,349.99	\$ 61.63
Clerical	20,285.63	18,678.66	1,606.97
Total	\$ 54,573.99	\$ 53,028.65	\$ 1,545.34
Traveling:			
Officers	\$ 1,674.94	\$ 2,796.65	\$ 1,121.71
Council and Executive Committee	10,517.43	12,524.04	2,006.61
Total	\$ 12,192.37	\$ 15,320.69	\$ 3,128.32
Annual meeting expenses, including transportation	\$ 30,795.45	\$ 29,764.81	\$ 1,030.64
American Medical Association Convention—Delegates' traveling and sundry meeting expenses	\$ 26,132.82	\$ 11,912.01	\$ 14,220.81
Council and Executive Committee expense	\$ 2,617.73	\$ 1,986.69	\$ 631.04
County Secretaries' Conference	\$ 4,049.07	\$ 2,487.99	\$ 1,561.08
Los Angeles office expenses	\$ 4,875.37	\$ 7,043.84	\$ 2,168.47
Legal and organization expense:			
Legal expense	\$ 14,106.20	\$ 14,367.80	\$ 261.60
Organization expense	61,035.80	10,940.98	50,094.82
Total	\$ 75,142.00	\$ 25,308.78	\$ 49,833.22
Office expenses:			
Office rent	\$ 8,712.96	\$ 8,712.96	
Telephone and telegraph	2,826.02	2,832.51	\$ 6.49
Supplies and expense	7,184.59	8,353.39	1,168.80
Postage	1,303.74	1,452.35	148.61
Total	\$ 20,027.31	\$ 21,351.21	\$ 1,323.90
Other expenses:			
Equipment purchases and expense	\$ 2,411.89	\$ 2,772.89	\$ 361.00
Payroll taxes	2,357.91	2,050.88	307.03
Pensions	480.00	2,685.00	2,205.00
Contribution—The Woman's Auxiliary to the California Medical Association	1,750.00	1,750.00	
Student subscriptions and meeting expenses	3,426.66	2,753.23	673.43
Miscellaneous	402.20	2,201.60	1,799.40
Total	\$ 10,828.66	\$ 14,213.60	\$ 3,384.94
TOTAL	\$241,234.77	\$182,418.27	\$ 58,816.50
SCIENTIFIC, EDUCATIONAL AND PUBLIC RELATIONS:			
Department of Public Relations	\$ 67,854.04	\$ 83,754.50	\$ 15,900.46
Public policy and legislation	72,609.99	58,466.46	14,143.53
Physicians' Benevolence	12,367.75	12,152.75	215.00
Postgraduate activities	35,265.07	31,907.21	3,357.86
Cancer Commission	27,587.02	26,300.55	1,286.47
Other committee activities	62,970.87	57,087.04	5,883.83
Subscriptions to libraries	6,183.86	6,076.38	107.48
Contribution to California League for Nursing	3,000.00	3,000.00	
Contribution to the American Medical Education Foundation	100,000.00		100,000.00
TOTAL	\$387,838.60	\$278,744.89	\$109,093.71
OFFICIAL JOURNAL—CALIFORNIA MEDICINE:			
Printing	\$109,560.85	\$102,549.36	\$ 7,011.49
Advertising sales expense	13,368.40	13,127.33	241.07
Salaries	21,741.75	20,994.25	747.50
Rent	3,043.20	3,043.20	
Telephone and telegraph	1,752.49	1,534.56	217.93
Postage and mailing	5,630.58	4,829.81	800.77
Addressograph	2,214.97	1,738.03	476.94
Illustrations	1,929.27	1,432.23	497.04
Advertising discounts and collection expense	2,599.32	2,369.01	230.31
Sundry	575.77	1,092.51	516.74
TOTAL	\$162,416.60	\$152,710.29	\$ 9,706.31
TOTAL	\$791,489.97	\$613,873.45	\$177,616.52

CALIFORNIA MEDICAL ASSOCIATION

EXHIBIT A

BALANCE SHEET, JUNE 30, 1955

ASSETS

CASH		\$244,572.97
ACCOUNTS RECEIVABLE		13,953.31
LOAN RECEIVABLE—NEW MEXICO PHYSICIANS' SERVICE.....	\$ 7,500.00	
Less reserve	7,500.00	
Remainder		Nil
OTHER LOANS RECEIVABLE.....	\$117,228.00	
Less reserve	116,468.50	
Remainder		759.50
INVESTMENT IN U. S. TREASURY BILLS (at cost).....		49,818.00
TRUST FUND (contra)		6,782.72
FURNITURE AND FIXTURES (at nominal value).....		1.00
DEFERRED CHARGES		1,929.29
DEPOSITS		675.00
TOTAL		\$318,491.79

LIABILITIES

ACCOUNTS PAYABLE		\$ 7,197.64
ACCRUED EXPENSES:		
American Medical Association—Delegates' and other expenses.....	\$ 3,900.08	
Organization expenses	4,916.84	
Committees' and sundry.....	13,177.78	
Payroll taxes	420.37	
Total		22,415.07
TRUST ACCOUNT—PHYSICIANS' BENEVOLENCE FUND (contra).....		6,782.72
DEFERRED INCOME—PREPAID ADVERTISING.....		274.65
SURPLUS, EXHIBIT B.....		281,821.71
TOTAL		\$318,491.79

EXHIBIT B

STATEMENT OF INCOME AND SURPLUS FOR THE YEARS ENDED JUNE 30, 1955, AND 1954, AND COMPARISON

INCOME:	Year Ended June 30		Increase Decrease
	1955	1954	
DUES AND GENERAL:			
Membership dues, less portion allocated to CALIFORNIA MEDICINE subscription	\$473,963.87	\$444,410.12	\$ 29,553.75
Exhibitors at annual meeting.....	27,040.00	23,300.00	3,740.00
Postgraduate institute	9,720.00	10,775.00	1,055.00
Fee for collection of American Medical Association dues.....	3,238.62	3,022.28	216.34
Interest earned	1,450.00	4,542.98	3,092.98
Other	56.40	53.00	3.40
TOTAL	\$515,468.89	\$486,103.38	\$ 29,365.51
OFFICIAL JOURNAL—CALIFORNIA MEDICINE:			
Advertising	\$141,551.75	\$130,648.77	\$ 10,902.98
Members' subscriptions allocated from dues.....	41,870.05	38,471.50	3,398.55
Other subscriptions	2,399.88	2,485.15	85.27
Reprints (net)	339.85	526.21	186.36
TOTAL	\$186,161.53	\$172,131.63	\$ 14,029.90
TOTAL INCOME	\$701,630.42	\$658,235.01	\$ 43,395.41
EXPENDITURES (Schedule 1):			
ADMINISTRATION	\$241,234.77	\$182,418.27	\$ 58,816.50
SCIENTIFIC, EDUCATIONAL, AND PUBLIC RELATIONS.....	387,838.60	278,744.89	109,093.71
TOTAL	\$629,073.37	\$461,163.16	\$167,910.21
OFFICIAL JOURNAL—CALIFORNIA MEDICINE.....	162,416.60	152,710.29	9,706.31
TOTAL EXPENDITURES	\$791,489.97	\$613,873.45	\$177,616.52
REMAINDER	\$ 89,859.55	\$ 44,361.56	\$134,221.11
ADD—EXCESS OF SURPLUS CHARGES OVER SURPLUS CREDITS:			
Reserve provided for loan to Central California Blood Bank.....	\$ 50,000.00		
Expenses applicable to prior periods (net).....	1,526.81		
TOTAL	\$ 51,526.81		
Less reduction in reserve for blood bank loans outstanding at June 30, 1954	8,141.00		
EXCESS	\$ 43,385.81		
DECREASE IN SURPLUS FOR THE YEAR.....	\$133,245.36		
SURPLUS, JULY 1, 1954.....	415,067.07		
SURPLUS, JUNE 30, 1955.....	\$281,821.71		

REPORT OF THE EDITOR

To the President and the House of Delegates:

Material submitted for publication in CALIFORNIA MEDICINE during the past year continued to flow in at about the same rate as in the preceding year, and the number of manuscripts accepted also was about the same. Comparative data on this aspect follow:

	From Annual Session		Other Sources		Total	
	Rec'd	Accepted	Rec'd	Accepted	Rec'd	Accepted
1955.....	124	81	118	75	242	156
1954.....	123	83	120	72	243	155

For cosmetic purposes a few changes were made in the typography of your journal. On pages that otherwise would have no accent, decorative initials were used sometimes to relieve the monotony of solid type. A greater variety of type faces now is used for subheads, permitting selections of styles that will improve the general appearance of the pages. For easier readability, the summaries at the beginning of articles now are set in a bold roman type rather than in the sans serif italic formerly used for this purpose. Other medical journals are scanned from time to time with an eye to neighborly borrowing of good new ideas of dress or presentation.

Perhaps the outstanding event of the year, so far as attention attracted to your journal from outside our own province is concerned, was the special issue on medical aspects of civil defense. The October issue was given over to articles prepared by experts on various aspects of the subject. In addition to some 15,000 copies of CALIFORNIA MEDICINE sent to subscribers, 2,000 separately bound reprints have been distributed throughout this country and additional orders are coming in. The civil defense issue was conceived and pressed to fruition by Dr. Justin J. Stein, chairman of the California Medical Association Committee on Military Affairs and Civil Defense, and Dr. W. Dalton Davis, medical consultant to the Medical and Health Services Division of the California Office of Civil Defense.

Two new members were added to the Editorial Board during the year: Dr. Victor Richards, of San Francisco, to the general surgery section and Dr. Edward W. Boland, Los Angeles, to the internal medicine section. To them and to all other members of the board, who do a large part of the review and selection of material for CALIFORNIA MEDICINE, the editor here expresses his gratitude. His thanks go also to many another worker who has helped sustain this journal by giving expert advice on manuscripts when called upon, by writing book reviews and by preparing special material on assignment from time to time. Special thanks go again to Robert Edwards, assistant to the editor, and to Mrs. Barbara Rooney, without whose exceptional and devoted understanding and help CALIFORNIA MEDICINE would be just another medical journal.

Respectfully submitted,

DWIGHT L. WILBUR, *Editor*

REPORT OF THE EXECUTIVE SECRETARY

To the President and the House of Delegates:

Your Executive Secretary presents herewith his report on activities and conditions during the past year. As in former years, this report is broken down into the several elements which comprise his sphere of activities.

1. *Administrative.* The administrative office has been enlarged during the past year. Space became available through the retirement of a dentist whose offices adjoined those of the Association and the building management made this

space available to the Association. Within the next few months it is expected that additional space will also become available; if this occurs, it will be possible to move additional Association activities into the central office.

The office force now consists of five men and eleven women employees. This represents an increase of two women employees over last year, the additions coming in the book-keeping-membership department and in one additional employee for filing and switchboard relief purposes. These increases were forecast a year ago and are in line with the continuous growth of the Association.

In the Los Angeles office the Association still maintains Mr. Ed Clancy, director of public relations, and a secretary. In addition, a new employee of the Committee on Postgraduate Activities, Mrs. Margaret Griffith, has been provided for in the Los Angeles office and carries on her activities from that base.

The Association still has two employees of the Committee on Postgraduate Activities and two of the Cancer Commission located outside the C.M.A. office, although the Cancer Commission employees are prepared to move into the central office as soon as suitable space becomes available.

Physically, the office is in good condition. Equipment has been maintained on the usual policy of replacement of worn equipment and adequate furniture and office fixtures are in use. It must be remembered that such items constantly require replacement and additions, especially in view of the ever-growing membership of the Association. Unlike many business offices, where records may be discarded after a calculated period of years, the C.M.A. office must retain many records for a long period of years after a normal period of expected usefulness. Membership records may not be removed and personal files of all physicians must be kept for an indefinite period of time. Such demands require the addition of storage and filing equipment as the Association continues to grow.

All books of account and membership records are subject to annual review by John F. Forbes & Co., the certified public accountants retained for such audits. The financial findings of the auditors are to be found in the report of the Treasurer, printed elsewhere in this issue.

2. *Membership.* Both total and active membership showed gains for 1955. At the year-end, the total membership registered 14,158, including 451 Associate members. This compares with a total of 13,185, including 388 Associate members, a year earlier. In terms of percentage gains, the total membership went up 7.4 per cent and the active membership 7.1 per cent during 1955. In the course of the last calendar year, the Association granted Retired Membership to 61 physicians and suffered a loss through the death of 101 members. Those who failed to pay their current dues or who moved to other jurisdictions totaled 149, or roughly 1 per cent of the total membership.

On the basis of the year-end membership, the Association will be entitled to one additional Delegate and Alternate to the American Medical Association for 1956. The House of Delegates will have this election before it.

In accordance with the requirement of the By-Laws for publication of the membership of the Association in terms of county society membership, the following table is presented as the membership of the component societies as of November 1, 1955. In accordance with these figures, the 1956 House of Delegates will be made up of one Delegate for each fifty (50) Active Members, or major fraction thereof, provided that each society shall have at least two Delegates to represent it.

MEMBERSHIP (ACTIVE) IN THE C.M.A. AS OF
NOVEMBER 1, 1955—BY COUNTY SOCIETIES

Alameda-Contra Costa	1,244
Butte-Glenn	76
Fresno	246
Humboldt	67
Imperial	53
Inyo-Mono	12
Kern	169
Kings	30
Lassen-Plumas-Modoc	26
Los Angeles	5,771
Madera	15
Marin	134
Mendocino-Lake	51
Merced	52
Monterey	146
Napa	70
Orange	319
Placer-Nevada-Sierra	63
Riverside	176
Sacramento	336
San Benito	10
San Bernardino	284
San Diego	658
San Francisco	1,567
San Joaquin	176
San Luis Obispo	65
San Mateo	384
Santa Barbara	172
Santa Clara	500
Santa Cruz	83
Shasta	43
Siskiyou	17
Solano	70
Sonoma	133
Stanislaus	131
Tehama	12
Tulare	96
Ventura	97
Yolo	39
Yuba	47
TOTAL.....	13,640

3. *Financial.* Financially, the Association closed its 1954-1955 fiscal year on June 30, 1955, with a net charge to surplus of \$133,245. Of this amount, \$50,000 represented a reserve account set up against a new loan to a blood bank in the California system. Actual expenditures for the year amounted to \$89,860 more than income for the same period, an expenditure total which had been forecast in the adoption of the year's operating budget.

Breaking down the Association's income for the fiscal year ended June 30, 1955, it is seen that membership dues increased to \$473,964 for the year from \$444,410 the preceding fiscal year, a gain of 6.6 per cent. Postgraduate committee income decreased 10.9 per cent, from \$10,775 to \$9,720. Income from interest went down from \$4,523 to \$1,450, due mainly to the fact that smaller funds were available for investment during the year. Miscellaneous income declined from \$3,011 to \$2,740, about a 10 per cent loss. Advertising revenues of CALIFORNIA MEDICINE increased 8.3 per cent, from \$130,649 to \$141,552.

As to expenditures, the auditor normally breaks down his figures into the categories of administrative expense, scientific, educational and public relations, and the journal. On this basis, administrative costs rose 32.2 per cent, from \$182,418 to \$241,235. Scientific, educational and public relations expenses went up 39.1 per cent, from \$278,745 to \$387,839, and journal costs increased 6.4 per cent, from \$152,710 to \$162,417.

An analysis of these increases shows that administrative costs, increasing \$58,817 for the year, included cost gains of \$50,094 for "organization expense," an item including the retention of outside counsel on physician-patient relationships and a small amount of legal expense involved in recent litigation.

This item also includes an increase of \$14,221 in the expenses of representation in the A.M.A. House of Delegates; this rise in cost came from the distance which C.M.A. Delegates had to travel to attend the A.M.A. sessions.

The increase of \$109,094 in expenses for scientific, educational and public relations expenses is mainly attributable to the contribution of \$100,000 granted the American Medical Education Foundation.

The slight increase in expenses of CALIFORNIA MEDICINE was caused by the increased circulation of the journal, based upon increased membership in the Association.

Complete figures on all income and expense items will be found under the Report of the Treasurer, elsewhere in this issue.

It is worthy of note that since the rendition of the auditor's report, an additional repayment of \$2,500 has been received from New Mexico Physicians' Service, a statewide medical care prepayment plan to which the Association advanced \$18,000 some years ago. N.M.P.S. has been repaying on this loan to the best of its ability and has now reduced the outstanding indebtedness to \$5,000. On the basis of current payments it would appear that this loan will be completely repaid within a few years.

4. *California Medicine.* The journal continued to maintain its place as one of the outstanding state medical journals of the country. Under the guidance of its editor and editorial staff, its usefulness to members has been constantly augmented.

Your executive secretary serves as business manager of the journal and submits herewith the highlights of the financial picture of CALIFORNIA MEDICINE during the fiscal year under review. Briefly stated, the journal showed, in the 1954-1955 fiscal period, gains of 8.2 per cent in income and of 6.4 per cent in expenses. The net result was an increase in net income of 22.5 per cent, from \$19,421 to \$23,745.

On the income side, the journal showed increases of 8.3 per cent in advertising income, 8.8 per cent in members' dues allocations and 8.2 in total income. Total costs of publication went up 6.4 per cent for the same period, from \$152,710 to \$162,416.

The journal is carried on the Association's books as a distinct enterprise, so that a complete picture of its financial progress may be noted. Any excesses of income over expenditures are thrown directly into general funds and are available for the general purposes of the Association. It is gratifying that CALIFORNIA MEDICINE is able to provide service for the membership and at the same time pay its own way and provide surplus funds for the Association.

5. *Commissions and Committees.* Your executive secretary has maintained liaison with and assisted in the work of various commissions and committees during the past year. Without attempting to go into detail, mention should be made of services provided for the Committee on Postgraduate Activities, Committee on Blood Banks, Committee on Legislation, Cancer Commission and Commission on Medical Services, among others. Mr. Robert L. Thomas has devoted a large part of his time and efforts to the Commission on Medical Services and has also worked diligently with the programs set up for Conferences of Physicians and Schools. His efforts in these departments deserve commendation.

6. *Public Relations.* Your executive secretary confers at all times with the two direct employees of the Public Relations Departments, Messrs. Ed Clancy and Glenn Gillette, and participates in all deliberations in this department. These two men are also to be congratulated on their consistently good performance, often in the face of considerable odds. Their accomplishments in the field of public

relations have been described by officials of national organizations as outstanding national examples of how a state program of public relations should be operated.

7. *Annual Session.* In 1956 the C.M.A. Annual Session will be held, for the first time, in the Ambassador Hotel, Los Angeles. It is believed that this arrangement will make possible the holding of all meetings, including functions of the Woman's Auxiliary, under one roof and will offer signal advantages to Association members.

The Council has now determined that regular policy shall be to hold two successive annual sessions in the Los Angeles area and the third meeting in the San Francisco area. Suitable arrangements will be made for the 1957 meeting in Los Angeles and advance preparation has already been taken for the 1958 meeting in San Francisco.

The 1956 Annual Session has been arranged with due regard for the needs of the scientific sections, the general meetings, the House of Delegates, Council, Woman's Auxiliary and all exhibitors, both scientific and technical. It is believed that this meeting offers every opportunity of being a valuable addition to the record of the past. Special tribute will be paid to the fact that 1956 is the Centennial Year for the California Medical Association, which was founded in 1856.

8. *General.* This report is necessarily brief but is intended to cover the major activities of the writer during the past year. It is impossible to enter into the numerous details which enter into the daily activities of an organization the size and scope of the C.M.A. In the words of the entire staff, "there's never a dull moment."

The entire staff is to be commended for its loyalty, devotion to duty and steadfast production at all times. Without a crew of this caliber, the C.M.A. ship could not sail along with so little friction. Your executive secretary is pleased to have this opportunity to issue his personal thanks to all members of the staff.

Thanks are also due to all officers, members of the Council and commission and committee members for their cooperation throughout the year. The Association runs on the volunteer efforts of these many members; it is a pleasure for your employed staff to work with such fine representatives of your profession.

Respectfully submitted,

JOHN HUNTON, *Executive Secretary*

REPORT OF LEGAL DEPARTMENT

To the President and the House of Delegates:

The Legal Department submits the following report covering the interval between the 1955 annual session and the time of the submission of this report in January, 1956.

During the past year we have attended all meetings of the House of Delegates, the Council, and the Executive Committee, as well as meetings of various commissions, standing committees, and special committees of the Association; and have also prepared and submitted opinions on a variety of subjects, as requested by the Association or its officers or its component societies.

With respect to the most important field of professional liability, we have attended all meetings of the Medical Review and Advisory Board, have rendered various opinions to it, have appeared before a number of county medical societies, and have consulted with a great number of interested related groups. The trend of recent court decisions in this field will be the subject of a supplementary report to be delivered to the House of Delegates at the annual session.

We regret to report that Complete Service Bureau, in San Diego, has again brought suit against the San Diego County Medical Society. This time the suit alleges that the Bureau has been damaged because of a claimed general animosity toward the Bureau by the Society and its members, and that the Bureau has been further damaged in that its employed doctors (with exceptions) have been denied admission to membership in the Society. The case was commenced last November, and at this time it is in its preliminary stages. Legal counsel for the Society have filed a demurrer raising a number of legal objections to the sufficiency of the complaint, and in addition have filed a motion to strike certain portions of the complaint. Both the demurrer and the motion were orally argued before the San Diego Superior Court in December, and the judge who heard the arguments has not as yet reached a decision. This, of course, is a preliminary hearing, and regardless of its outcome a trial of the case as a whole will probably be necessary at some time in the future. Again, this matter will be the subject of a supplemental report to the House of Delegates at the annual session.

In the field of legislation, interim committees of the Senate and Assembly have been most active since the adjournment of the Legislature in June, and on behalf of the Association and its Legislative Committee we have attended a number of public hearings held by interim committees, ranging from such subjects as licensing of naturopaths to possible changes in the laws governing health insurers.

With respect to naturopathy, three full-day public hearings have been held and we have endeavored to present to the committee all of the reasons, legal, educational and otherwise, why licensing of naturopaths would not be in the public interest. A large chiropractic group is pressing hard for naturopath licensing. As a result, extensive research and preparation have been necessary.

In addition to the writer of this report, both Mr. George A. Smith and Mr. Alan L. Bonnington have been available to the Association throughout the year, and have performed many tasks on behalf of the Association and its component societies.

It is a pleasure to be of service to the medical profession of California.

Respectfully submitted,

PEART, BARATY & HASSARD
By Howard Hassard

REPORT OF THE EXECUTIVE COMMITTEE

To the President and the House of Delegates:

The Executive Committee has held meetings between Council meetings and such special meetings as were necessary. The Executive Committee has handled those matters which have been referred by the Council and other matters requiring emergency action. Routine matters, as well, have been handled by the Executive Committee in an effort to shorten the crowded agenda of the Council.

All actions are subject to confirmation by the Council and subsequently published in CALIFORNIA MEDICINE.

Members of the Executive Committee have given most generously of their time. I particularly wish to thank those members from the southern part of the state for attending the meetings in San Francisco, often on short notice.

Respectfully submitted,

IVAN C. HERON, *Chairman*

REPORT OF THE COUNCIL

To the President and the House of Delegates:

During the calendar year 1955 the Council held six meetings and reviewed and approved the actions taken by the Executive Committee in eight additional meetings. At this writing another Council meeting is scheduled for February 12 and additional meetings of the Council or Executive Committee may well be held before the time of the Annual Session.

The Council must approve the actions of the Executive Committee in order to make such actions official. The Executive Committee, comprising five voting and two ex-officio members, has adopted a policy of monthly meetings where these are indicated; such meetings tend to keep the Council's transactions up to date and to lessen the burden of work on Council meeting agendas.

In brief form, there appear below some of the major items which have commanded the attention of the Council during the past year. These are subject to further elaboration before the reference committees of the House of Delegates, if desired, or on the floor of the House. They are given here as a summary for the consideration and information of the members of the House of Delegates.

1. *C.P.S. Income Ceiling.* The Council has been pleased to note the number of counties which have approved the \$6,000 C.P.S. income ceiling, which the House of Delegates approved last year on a local option basis. At the close of 1955 there were 29 county medical societies covering 46 counties on record as having approved this income ceiling for groups written within their borders. Some of the more populous counties have not embraced this income ceiling and it is hoped that they will give further study to this proposal as a means of creating a statewide uniformity which will permit the enrollment of statewide or national employee groups. An example of such enrollment is found in the recent acceptance by a large group of employees of a national corporation in a combined C.P.S.-Blue Cross program in the northern counties of the state.

2. *Poliomyelitis Statement.* Following the close of the 1955 Annual Session the Council approved and authorized distribution of a statement calling attention to the unorthodox methods used in announcing the availability of the Salk antipoliomyelitis vaccine. This carefully prepared statement was widely quoted throughout the country and was commented upon as representing the only sizable medical organization in the country which showed enough courage to suggest that the time-tested methods of scientific approach to new drugs be employed in so important a development. The Association has been roundly complimented on the attitude it took at that time.

3. *Physicians' Benevolence Committee.* The Council approved the formation of a California nonprofit corporation to take over the affairs of the existing Physicians' Benevolence Committee. This corporation is expected to qualify in the next few months as a charitable organization to which contributions may be made on a tax-deductible basis. The functions of the corporation will be identical to those of the present committee but the change in tax status, which is not now available to the Association, should encourage greater contributions to this worthy cause. An amendment to the C.M.A. Constitution, to approve this corporation, will be before the 1956 House of Delegates and its passage is urged.

4. *Student Meetings.* The Council has been pleased to approve the holding of two meetings a year of the medical students in the Los Angeles and San Francisco areas. These meetings have proved quite popular with the students, have

attracted a large attendance and have resulted in a greatly improved means of communication between the physicians of today and those of tomorrow. Such meetings provide an opportunity to educate our future doctors in matters of business, organization, ethics, insurance and other items which our busy medical schools find impossible to fit into their current curricula. It is intended to continue these meetings.

5. *Medical Education.* At the 1955 Annual Session the Council proposed that membership dues for 1956 be increased from \$40 to \$50 and that an appropriation of \$130,000 be made in the 1955-1956 budget for support of the American Medical Education Foundation. The House of Delegates approved this proposal, with the stipulation that 80 per cent of the appropriation go to the three California medical schools which are not primarily tax-supported and the other 20 per cent to similar schools throughout the country. Since this appropriation would not apply until 1956, the Council late in 1955 voted to appropriate \$25,000 to the A.M.E.F. for the year 1955. This gift was gratefully received as a portion of the funds needed by A.M.E.F. in its continuing program to keep our medical schools free of governmental domination. All members are urged to contribute to this fund to the best of their ability.

6. *Professional Liability Insurance.* The Council has approved the program outlined and undertaken by the Medical Review and Advisory Board in the field of professional liability insurance. It appears to the Council that the educational possibilities in this field, if based upon factual knowledge, offer the soundest possible approach to this problem of long standing. The board appears to be embarked on a sound, constructive program which should make its conclusions of extreme value to the public and physicians alike. Much remains to be done in this field and the Council intends to continue its cooperation with this board, especially in preparing the next budget.

7. *New Commissions and Committees.* The Council, early in 1955 approved a complete reorganization of committees drawn up by Doctor A. A. Morrison, then President of the Association. The House of Delegates approved this new setup, under which the major functions of the Association are placed under the direction of six commissions. In turn, the commissions represent numerous subcommittees, to which are assigned specific tasks. In practice, this new setup has functioned much more smoothly than the earlier system of numerous standing and special committees. The time of the Council has been conserved and a direct voice provided for each committee to the governing bodies of the Association. It is noticeable in the current reports of these commissions, and their subcommittees, that the numerous functions of committees have been considerably streamlined.

8. *Blood Banking.* During 1955 another blood bank in the California statewide system was opened. The Central California Blood Bank, sponsored by the Fresno County Medical Society, was organized as a nonprofit organization and the Council approved loans from the blood bank revolving loan fund for the start of this organization. While there has been some local controversy over the start of this operation in competition with other blood banking services, the Council believes that it has followed organizational lines in complying with the expressed wishes of a component county society and has followed the principles of blood banking which have been supported in the California blood banking system since it was established. It is hoped that local differences may be ironed out in the near future and the status of this blood bank clarified, both locally and statewide.

9. *Relative Value Fee Study.* The Commission on Medical Services has carried on its studies on a relative value fee table and hopes to have its work completed by the time of

the Annual Session. Such a table, if approved, would form a base from which any fee schedule could be drawn by the simple expedient of applying a dollar value to the units expressed in the study. It is believed that this fee table will be of great value in the underwriting of voluntary health insurance.

10. *Reporting of House of Delegates Transactions.* The Council has considered the possible streamlining of the reporting of transactions of the House of Delegates. In the past a complete, verbatim report of all activities of the House has been published in *CALIFORNIA MEDICINE*. While this gives every member a complete story of the workings of the House, it requires a long time for securing the transcript, editing for clarity, setting type and printing. If the positive actions of the House of Delegates would suffice for the members, it would be possible to publish these actions within a short time after each session. The full consideration of this proposed method of publishing is requested from the membership of the House, so that the Council may govern its actions accordingly.

11. *Place of Annual Sessions.* The Council has determined that, due to its proximity to a large portion of the C.M.A. membership, Los Angeles should be chosen as the meeting place for Annual Sessions for two successive years and San Francisco for the third year. In accordance with this decision, preliminary plans have already been made to hold the 1957 Annual Session in Los Angeles and the 1958 meeting in San Francisco.

12. *Medical Care of Veterans.* The Council has approved a letter to be sent by the C.M.A. President to the Chief Medical Officer of the Veterans Administration, urging that the present system of "home town" medical care for service-connected disabilities be retained and augmented. The VA officer had suggested, to California and to seven other states which operate similar programs, that such programs be discontinued in favor of direct care by VA facilities, presumably local clinics. The C.M.A. action is in line with similar replies by the other affected states.

13. *Auto Crash Injury Study.* The Council has approved a study to be made in several California counties in the next two years on the cause and physical injury results of automobile crashes. This study is being carried on nationwide by a branch of the medical school of Cornell University, in conjunction with governmental departments and automobile manufacturers. Several safety features found in new model cars have resulted from this study and it is hoped that additional safety factors may result from the further study. The cooperation of members in the areas selected for this study is earnestly solicited.

14. *Consolidation of Association Offices.* The Council has approved the securing of additional office space for the headquarters office and the occupancy of such space by functions of the Association now located in other quarters. The Cancer Commission has already indicated its desire to be quartered with the Association when the needed space is available. The Committee on Postgraduate Activities has located its new employee in the Association's Los Angeles office and it is hoped that eventually the entire C.M.A. operation may be carried on from one base.

15. *Appointment of Councilor.* The Council was saddened during the year by the untimely death of Henry A. Randel of Fresno, Councilor from the Sixth District. In order to assure representation on the Council for that District, the Chairman asked the Delegates from the District to select their nominee, as they would be asked to do in a regular session of the House of Delegates. On the basis of this selection, Doctor Donald C. Harrington of Stockton was appointed a member of the Council, to serve until the 1956 Annual Session. At the

time of that session, the House of Delegates will consider the appointment of a Councilor from the Sixth District under the terms of the By-Laws applicable to such appointments.

The Council may make an additional report on the floor of the House of Delegates should further items be deemed of sufficient importance to bring to the attention of the members.

Respectfully submitted,

DONALD D. LUM, *Chairman*

REPORT OF DISTRICT COUNCILORS

FIRST COUNCILOR DISTRICT

San Diego County

To the President and the House of Delegates:

During the past year I have attended all of the regular meetings of the Council and the annual meeting of the House of Delegates, the minutes of which have been duly reported in *CALIFORNIA MEDICINE*.

With the reorganization of the committee structure of C.M.A., I have served as the Chairman of the Commission on Public Health and Public Agencies, and continued as Chairman of the Committee on State Medical Services.

During the past year the Medical Society of San Diego has undertaken the construction of a Medical Building to house the Medical Library and the Doctors Service Bureau, as well as supply offices for the Executive Secretary. The building will be ready for occupancy in January 1956.

The San Diego Medical Society has shown continued growth and the community has been aided by the opening of two new hospitals.

It is my hope to continue to serve as Councilor of the First District, and I shall make every effort to aid in correlation of the San Diego Medical Society activity with those of the California Medical Association.

Respectfully submitted,

FRANCIS E. WEST, *Councilor,*
First District

SECOND COUNCILOR DISTRICT

Imperial, Inyo, Mono, Orange, Riverside and San Bernardino Counties

To the President and the House of Delegates:

The county associations which comprise this district all experienced an increase in membership during the past year. The largest increase has been experienced by Orange County.

It is gratifying to note the high quality of personnel which has been responsible for the increase in membership.

The hospitality extended to the California Medical Association officers and myself by the local associations at the time of our annual visitations, as well as at other times, is gratifying and very much appreciated.

Respectfully submitted,

OMER W. WHEELER, *Councilor,*
Second District

THIRD COUNCILOR DISTRICT

Los Angeles County

To the President and the House of Delegates:

I have attended all the meetings of the Council during the last year and, in my consideration, the conditions of the Association are in good and competent hands.

I have attended several meetings of the Salk Polio Vaccine Committee of the California State Board of Health, and wish to state that the health officers of the State of California consult very frequently with our Association regarding all problems.

Respectfully submitted,

H. CLIFFORD LOOS, *Councilor,*
Third District

FOURTH COUNCILOR DISTRICT

Los Angeles County

To the President and the House of Delegates:

Although the "Los Angeles yardstick of feet" failed of adoption as an official fee schedule, much interest and understanding was generated in the field of Fee Schedules.

This Councilor is attending the monthly meetings of the branch officers in order to establish a closer liaison between the branches of the Los Angeles County Medical Association and between that organization and the state association.

It has been felt that definite progress has been made with the many phases of our Public Relations Program.

Respectfully submitted,

E. E. WADSWORTH, JR., *Councilor,*
Fourth District

FIFTH COUNCILOR DISTRICT

San Luis Obispo, Santa Barbara and Ventura Counties

To the President and the House of Delegates:

During the past year as Councilor of the Fifth District I have been interested in the growth of the State of California and the number of new physicians who are entering practice in this state. Many problems have demanded attention and thought, such as public relations, the development of a relative fee schedule, better C.P.S. relations with the doctors and the public, and legislative problems relating to the better medical care of the people in this great state. Under the astute leadership of Drs. Sidney J. Shipman and Donald A. Charnock, much progress has been made. The California Medical Association has proved itself to be flexible and reasonable in dealing with the multitude of problems which have been presented to it.

I attended all of the Council meetings last year except one because of illness, and have visited the Santa Barbara, Ventura and San Luis Obispo County Medical Societies in my capacity as liaison officer between them and the California Medical Association. Several conferences have been held with Mr. Ed Clancy, Mr. Ben Read and Mr. John Hunton regarding better public relations in the Tri-County area. I have attended labor relations conferences, the annual meeting of the county society presidents and secretaries, discussions of the Medical Services Commission and the California Physicians' Service. Much work has been done in keeping the California Medical Association informed of advances in prepaid medical care throughout the United States.

As advisory member of the California Medical Association Cancer Commission, I have attended the meetings and have been pleased with the excellent work which the Cancer Commission is doing in this state.

Respectfully submitted,

R. O. PEARMAN, *Councilor,*
Fifth District

SIXTH COUNCILOR DISTRICT

Calaveras, Fresno, Kern, Kings, Madera, Maripasa, Merced,
San Jaquin, Stanislaus, Tulare and Tualumne Counties

To the President and the House of Delegates:

I was appointed by the Council in December, 1955, to fill the unexpired term of the late Henry Randel, to serve on an interim basis until the annual session, 1956. I have attended one Council meeting.

Respectfully submitted,

DONALD C. HARRINGTON, *Councilor,*
Sixth District

SEVENTH COUNCILOR DISTRICT

Manterey, San Benita, San Mateo, Santa Clara, and
Santa Cruz Counties

To the President and the House of Delegates:

Since taking office as Councilor for the Seventh District it has been my privilege to attend all of the council meetings, during which matters of both economic and sociologic importance were discussed.

The component societies of the Seventh District have enjoyed their usual good growth, with an increase of 11 per cent in membership. They have devoted more than their usual time to public relations with increasingly good results.

A pilot study in San Mateo County on physician-patient relationship has been extremely interesting, and the final results of this study should prove to be of great value to the profession.

Respectfully submitted,

JAMES H. MCPHARLIN, *Councilor,*
Seventh District

EIGHTH COUNCILOR DISTRICT

San Francisco County

To the President and the House of Delegates:

During the past year I have been honored to serve as Councilor from the Eighth District (San Francisco) for the California Medical Association. I have given reports on the Council meetings to the Board of Directors of the San Francisco Medical Society.

The year 1955 was a busy one for the San Francisco Medical Society, highlighted by the move in the spring of the Society and its Blood Bank to the new headquarters at 250 Masonic Avenue. The building, modern in design, houses the Society's administrative offices, an auditorium with a seating capacity of 500, a minifilm unit, Woman's Auxiliary office, and the Blood Bank.

The membership approved the C.P.S. \$6,000 ceiling early in the year. There has been continued cooperation with the Health Service System; a member of the Society's Medical Insurance Committee serves as an advisor to the H.S.S.

Innovations during the year included the first medical-legal dinner, when the Society and the Bar Association joined forces for an outstandingly successful meeting, with Mr. Erle Stanley Gardner as guest speaker. The Young Physicians Committee inaugurated the first fall reception for medical students and house staffs, assisted by the Woman's Auxiliary and the Public Health League. This committee also began a series of forum-social meetings for senior medical students and their wives and arranged for student affiliation with the Society. Plans are being made for a student preceptorship program in 1956.

Through the Society's Community Service Commission, which is active in stressing to the membership and the

public the Society's interest in over-all community service, an informative brochure on Society activities was issued to the public. Of special long-range community service is the formation of a subcommittee on air pollution, which will work under the direction of the Industrial and Public Health Committee.

Many other committees functioned effectively under the leadership of Herbert C. Moffitt, Jr., in a year of steady progress.

SAMUEL R. SHERMAN, *Councilor,*
Eighth District

NINTH COUNCILOR DISTRICT

Alameda and Contra Costa Counties

To the President and the House of Delegates:

The Alameda-Contra Costa Medical Association accomplished several small expansions of its public service program. The Public Relations Committee has initiated and solicited from the membership a slowly-growing scholarship loan fund whereby Alameda and Contra Costa County students at the University of California and Stanford Medical Schools may borrow money to continue their study and repay after graduation; the Advisory Committee to Visiting Nurses has begun work on the problems of senior citizens. This work has already received favorable public notice in the press.

The Coroner's Autopsy Committee publicly and before public agencies vigorously and successfully presented medicine's point of view in opposing proposed changes in the coroner's office. Our committee on emergency services has been studying the publicly supplied emergency facilities.

The Distribution of Medical Care Committee has added to its previous responsibilities by reviewing cases in which doctors or patients are in dispute with California Physicians' Service.

The Medical Services Committee has continued to meet with representatives of health and welfare funds, insurance companies, doctors and neighboring medical societies with regard to the economic problems of medicine. It has been asked by two labor welfare funds for advice and counsel in establishing increased benefits and indemnities in their health insurance plans.

During the 12 preceding months, 145 doctors have been admitted to Association membership after indoctrination by the Intra-Professional Committee.

More than ordinarily noteworthy was the intensive work of the Medical Practice Committee, which received and reviewed 142 new malpractice complaints against doctors of the Association of which 75 were immediately screened out as requiring no further consideration. All cases which the committee considered defensible were successfully defended.

Respectfully submitted,

DONALD D. LUM, *Councilor,*
Ninth District

TENTH COUNCILOR DISTRICT

Del Norte, Humboldt, Lake, Marin, Mendocino, Napa, Solano
and Sonoma Counties

To the President and the House of Delegates:

The Tenth District this year has seen steady progress along lines that have evolved gradually over preceding years in conformity with preceding patterns of action that have developed elsewhere in the state. The Median Fee List has been quite thoroughly discussed particularly in those coun-

ties near the southern portion of this district, and has been adopted with various modifications. In some instances, this has been done following discussion and cooperation with local labor groups. This has particularly been the case in Solano and Marin counties, although it is in the latter county that the relationships between these two have been particularly worthwhile. The effort in general has been to try to establish these lists only as mathematical statements of fact as regards to the median charges for the various procedures listed. It has been hoped that this could be used as a source of information particularly for purchasers of insurance coverage, and by insurance companies in setting up policies which would adequately pay these expenses for the medical consumer. In other areas, because of the greater pressure of necessity, the median fee lists have approached the status of a schedule with the expressed willingness of the county medical members to abide by this list as their fees. In one or two individual instances, there has been an undesirable tendency to lower the median fee level which of course, completely defeats the function of this factual data. This turn of events should be avoided at every possible point.

The relative fee schedule of Dr. Cox's committee of the California Medical Association has been well distributed throughout the district and has been variously considered by it. Preliminary reports from several of the counties reveal general acceptance of the policy philosophy but still not a clear understanding of what the list is for, how it might be used, and what relationship it may have to other fee schedules such as C.P.S., Workmen's Compensation, etc. I believe it is very important during our next trip through the various societies to explain this list so that the individual members may have as broad a foundation as possible of information upon which to base their decisions and actions.

Visits by President-elect Charnock this year were made easier due to the kind cooperation of the various county medical societies in altering some of their usual dates of meetings so as to make it possible for him to cover as many of the counties in as efficient a manner as possible. The first county that Dr. Charnock visited in the new year was the Mendocino-Lake County Society in my district. Under the able chairmanship of this year's President, Dr. Barnes, an unusually successful meeting was held. We had the good fortune of having the wives present which is the first time that has happened in a good many years and I believe is most worthwhile since many of the comments of the visiting officers can be best amplified and dispersed by clear understanding by the Auxiliary members.

The following evening, the group went north to meet at the Humboldt-Del Norte counties in Eureka. It was not possible for the Councilor to drive with the group, but instead he arrived at the commencement of the business meeting later in the evening. Dr. Jarvis was the presiding officer and effectively introduced the Councilor who conducted the meeting. Dr. Charnock presented a stimulating discussion of the various functions of the California Medical Association with an effort to be informative and factual. Supporting comments and observations were made by other members of the visiting group which included Mr. Clancy, Mr. Gillette and Mr. Salisbury.

On October the tenth, the same group met with the Solano County Medical Society under the chairmanship of their president, Melvin Schmutz. Although Solano County seems to be one area that has a most difficult challenge for the integration and application of the Median Fee List and the competitive attraction of patients away from closed panel groups, it seems nonetheless to be effectively meeting its

problem and is carefully working as a unit in order to preserve the best in the private practice of medicine. The Solano County meeting had the honor of having as its visitor, Dwight Murray, President-elect of the American Medical Association. He came down as a friendly gesture to his many friends in this adjacent county and to say hello to his particular friend, Dr. John Green, recent past president of the California Medical Association.

At the Napa meeting, we again had the honor of having present its most eminent medical member, Dr. Dwight Murray, who addressed the group briefly and in whose honor, in many respects, the meeting was held. Earlier in the summer, the Napa County Medical Society had had a special banquet honoring its eminent citizen. To it, many of the present visiting group were invited and we were pleased during this particular meeting of seeing the various pictures of the visiting dignitaries at that summer meeting. Dr. Charnock, in addition, was able to effectively present his message to the members and to bring into focus, the various problems that the California Medical Association and private practice of medicine have.

On Thursday, October 13, the group met as guests of the Sonoma County Medical Society under the presidency of Dr. Westphal. He first had the group of the Society and visiting men to his home for general relaxation and cocktails after which the group repaired for the county society meeting. A business meeting was held and some local discussion of their individual problems developed. Dr. Charnock again was effective in presenting his message and in imparting to the group the attitude and actions of their elected representatives. The Sonoma County Society had later in the year, some misgiving regarding the items to which the dues of the California Medical Association were applied, more specifically, the hundred thousand dollars which was allocated to the Medical Education Foundation activities. It will be important that this county society be oriented as regards the importance of this contribution and to understand the mechanisms by which this money was given. It, in fact, was not an assessment on the annual dues at all, but instead, the dues in general were raised ten dollars as a blanket move. Then, as a separate item and in the annual budget there was included the amount of money given to the American Education Foundation group. The level of the dues as such, and the adoption of the budget as such, were two independent actions on the part of elected delegates and were not necessarily related. There was then some recent evidence that some closed panel group is becoming interested in the Sonoma County area. This naturally will necessitate clear thinking on the part of the county society with intelligent and unified action so as to maintain the medical service to the citizens of Sonoma County at the highest possible level.

At the time of the submission of this report for publication, the meeting with the members of the Marin County Medical Society had not yet occurred. However, since the Councilor is a member of that county, his contact with them is unusually direct and, he trusts, effective. In that county, under the presidency of Dr. Carroll Russell, the progress during the year has been unusually steady and effective with the successful integration of committees and active participation in public projects and in medical economic subjects. They have been particularly active in problems of emergency coverage, emergency telephone calls, proper care for the indigent and welfare groups, and liaison with the local labor units as regards to fee lists and to charges. Although their county, as with many in the state, has increased approximately 100 per cent in the last seven years, their integration still remains excellent and stabilized.

During this past year, your Councilor attended every meeting of the Council and each of the meetings of the various county societies, as we made our annual visit. He has made an effort to remain informed of the attitudes and opinions of the various members that he has contacted, and who have contacted him. He has been most appreciative of the good work that the various delegates and alternates have done as they came to the annual meeting of the California Medical Association and wishes to congratulate each of the county societies upon the excellence of their representation. He trusts that he has been at least moderately effective in representing his district on the Council in a democratic and effective way to the benefit of his district and the California Medical Association.

Respectfully submitted,

WARREN L. BOSTICK, *Councilor,*
Tenth District

ELEVENTH COUNCILOR DISTRICT

Alpine, Amador, Butte, Colusa, Eldorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo and Yuba Counties

To the President and the House of Delegates:

The year 1955 shows no significant change in the affairs of the medical societies in this largest of all C.M.A. districts. All of our societies continue strong and vigorous and their members continue active and enthusiastic in their practices.

There are a number of continuing problems scattered throughout small hospitals in the district involving dual staffs between M.D.'s and osteopaths. No significant change in these problems was encountered in 1955 but this was possible only because of the very careful on-the-ground vigilance of the California Medical Association public relations representative for this district.

At the close of the year a series of disastrous floods in the Yuba City area introduced some problems for the care of patients which were well handled by physicians of this area and surrounding communities, and some serious financial losses on behalf of some of the doctors of this society. These losses are under careful study by the C.M.A. with a view to seeing what we can do to help.

The annual state C.M.A. officer visits to the component societies were very well received, and have done much to bind the societies of the district into a strong portion of the C.M.A.

Your councilor has attended and participated in all meetings of the Council and made every effort to keep himself abreast of the rapid changes in medical affairs throughout this year.

Respectfully submitted,

RALPH C. TEALL, *Councilor,*
Eleventh District

REPORTS OF COUNCILORS-AT-LARGE

To the President and the House of Delegates:

During the past year, I have attended all of the meetings of the Council of the California Medical Association. I have participated actively in all of the deliberations involving the California Medical Association. As chairman of the Insurance Committee, I obtained the approval of the Council for the development of a Catastrophic Group Health and Accident Policy with the Lumbermen's Mutual Casualty Company. This policy permits a waiting period of six months

before it pays an indemnity, thus making it available at a considerable decrease in cost.

Respectfully submitted,

ARTHUR A. KIRCHNER, *Councilor-at-Large*

To the President and the House of Delegates:

As Councilor-at-Large I have attended meetings of the Council of the California Medical Association and have taken part in the business of the committees to which I have been assigned, notably the Auditing Committee and the Insurance Committee. I was designated by the Council to continue as a liaison member from the Council to the Board of Trustees of California Physicians' Service and have attended their meetings and served as vice-president of that organization. As a means of attempting to establish a closer liaison between constituent societies in the California Medical Association I have attended a number of meetings of the Council of the Alameda-Contra Costa Medical Association. With the Legislative Committee of that Society I went to Sacramento to meet with the local members of the legislature. Aside from this work in connection with the Alameda-Contra Costa Medical Association there have been no requests from other northern societies for any consultations or meetings with this councilor-at large during the year just past.

Respectfully submitted,

T. ERIC REYNOLDS, *Councilor-at-Large*

To the President and the House of Delegates:

During the past year I have attended all meetings of the Council, and with California Medical Association officers have visited some of the county medical societies in Southern California. As in the past, various committee reports indicate a great deal of hard work and much thought. The reports, as well as other matters, to come before the Council were all carefully studied and acted upon in the best judgment of the Council.

The published reports and procedures of the Council meetings indicate the large number of problems and the serious thought that has been given them and all affairs of the Association by the elected officers and employees.

Respectfully submitted,

ARTHUR E. VARDEN, *Councilor-at-Large*

To the President and the House of Delegates:

As Councilor-at-Large I have attended the meetings of the Council of the California Medical Association and have taken part in the discussions and decisions of the Council. I have also carried out committee and other assignments.

I have endeavored to translate the wishes of the House of Delegates to the county societies, to other organizations, including the California Physicians' Service as a Council-appointed trustee, to the Blue Cross of Northern California as a member of their board of directors and to the members of the California Academy of General Practice as immediate past chairman of the board of directors of the American Academy of General Practice. In turn, requests, questions, and problems of these organizations as well as the membership at large of the California Medical Association have been referred to the Council for suggestions or action.

Respectfully submitted,

IVAN C. HERON, *Councilor-at-Large*

To the President and the House of Delegates:

It has been a pleasure to serve as a councilor-at-large this past year.

I have attended all meetings and have participated in the discussions and decisions of the Council.

In addition, as chairman of the Medical Services Commission, it has been my duty to keep the Council informed on the work of the Commission.

Respectfully submitted,

H. L. CAREY, *Councilor-at-Large*

To the President and the House of Delegates:

I have attended all meetings of the Council and have been active in organizing the Commission on Medical Education and transmitting reports of its various Committees to the Council.

Respectfully submitted,

EDWARD C. ROSENOW, JR., *Councilor-at-Large*

REPORTS OF COMMISSIONS

CANCER COMMISSION

To the President and the House of Delegates:

This report covers the activities of the Cancer Commission for the year 1955-56. The Commission is pleased to report that progress has been made in pursuing the objectives of the previous year, developing certain new projects and planning for the future.

The Commission maintains continuing interest in the problem of cancer quackery. One new alleged cancer remedy has come to the attention of the Commission and has been under investigation. This inquiry is now nearing completion. The findings will be submitted to CALIFORNIA MEDICINE for publication in the near future.

The Commission continues to receive many inquiries concerning various alleged cancer treatments. We have maintained extensive files of the investigations made by the Commission and by other reliable bodies. The completeness of our files enables us to provide accurate information promptly to those seeking advice.

At the present time a brochure listing the more common unconventional methods of cancer therapy is being prepared. This will include data and references concerning these methods and should be available to members of the California Medical Association soon.

The Commission has received national recognition for its pioneer work in the field of investigation of cancer quackery. The Committee on Cancer Quackery of the American Cancer Society has commended the California Medical Association for its effective efforts and has recommended that all state medical associations undertake similar programs through existing agencies or create bodies similar to the Cancer Commission of this Association.

Drs. L. Henry Garland, David A. Wood and John W. Cline are now members of the American Cancer Society committee which is studying the problem of quackery on the national level. Dr. Ian Macdonald also was a member of this committee until recently, when he assumed the chairmanship of the national Service Committee of the American Cancer Society. In addition, Dr. Garland serves as chairman of the Committee on Cancer Diagnosis and Therapy of the National Research Council which also deals with matters relating to quackery. This body has made recommendations similar to that of the American Cancer Society urging more vigorous

participation by state associations in activities designed to combat cancer quackery.

As a result of these recommendations by national bodies we have received inquiries from other state associations desiring information about our organization and operational plan. The Commission has been pleased to furnish such information.

There is evidence of increasing interest in the problem of cancer quackery on the part of the component county societies and the members of the California Medical Association. The Commission wishes to express its gratitude and appreciation to the editors of county medical society bulletins who have printed the articles prepared by the Commission and published in CALIFORNIA MEDICINE. Several bulletins have published material prepared locally or secured from other sources. The Commission is convinced that the physician can cope more effectively with cancer quackery in his own community and can render greater assistance at the state level when he is well informed concerning it.

The cancer quack exhibit, jointly sponsored by the Commission, the California Division and the State Department of Health, continues to be in demand. It has been shown at a number of fairs and other public meetings widely distributed over the state.

The Commission's efforts in this field will continue unabated. It feels strongly that it is the duty and responsibility of the California Medical Association to protect the public from the harmful and avaricious practices of the cancer quack to the greatest extent possible.

As one facet of dealing with this problem the Commission has attempted to disseminate information on cancer as a chronic disease. Much can be done for patients with certain advanced, recurrent and metastatic cancers. Consistent, interested care should be rendered to them. The Commission will attempt to draw the attention of the membership to new and improved methods as they become available.

Other activities of the Cancer Commission may be summarized as follows:

1. During the year the Medical Director visited 46 Consultative Tumor Boards throughout the state. As a result of the reports given to the Commission by the Medical Director and other information available to it, a total of 50 Tumor Boards was granted full approval, provisional approval was granted to nine, and four were not approved. Three new Tumor Boards have come to the official attention of the Commission during the year, and it has heard of at least two others.

The California Division, American Cancer Society, through its local branches, continues to support approved Tumor Boards by giving financial assistance for secretarial help, visual aid equipment and consumable supplies. This generous support is important and several Boards would find it difficult or impossible to operate without it.

During the year the "*Minimum Standards for Consultative Tumor Boards in California*" was revised and approved by the Council. Wide distribution has been made to all interested parties. The revision has been well received in spite of the fact the standards were somewhat tightened.

The Medical Director has appeared before several interested medical groups to discuss the formation of new Tumor Boards.

2. During the year 21 cancer conferences were held in conjunction with county medical societies, and approximately 1,440 physicians attended. This represents 34 per cent of the licensed physicians in the counties covered and would appear to indicate a desire on the part of physicians that the conferences be continued.

The cost of these conferences was about \$3,220, and was shared by the Commission and the California Division. We

believe this represents a sound expenditure of funds for educational purposes.

Plans are under way to expand the program during the coming year.

3. The Tissue Tumor Registry continues to serve both pathologists and clinicians on a statewide basis.

In order to strengthen the liaison between the Commission and the Registry, the Medical Director was appointed by the Registry as an ex-officio member of its Executive Committee.

The Mid-Winter Tissue Slide Conference was held, in conjunction with the California Society of Pathologists, and the regional meeting of the College of American Pathologists in Los Angeles on December 4, 1955. The moderator was Hugh Grady, M.D., of the Armed Forces Institute of Pathology. It was reported to be one of the most successful conferences yet held.

There are five monthly study groups in the state who review the specimens submitted to the Registry. Two additional groups are being formed. Besides supplying these groups with the necessary material, the Registry prepares all the slides for the two Tissue Slide Conferences held each year. These require several thousand slides and preparing them is a task of no small magnitude.

Dr. Weldon Bullock has taken over as curator of the Registry this year and has done a most commendable job of reorganization, which has resulted in increased efficiency of operation.

4. The Annual Pre-Convention Conferences for Pathology and Radiology were successful and well attended. The office of the Medical Director assisted in arranging these two conferences.

5. The "*Monograph*" series and "*CA: A Bulletin of Cancer Progress*" are being distributed to those physicians of the state who have indicated a desire to receive them. The cost of the project is shared by the Commission and the California Division.

6. During the year a great deal of publicity on the seroflocculation test commonly known as the "*Penn*" or "*Penn-Dowdy*" test appeared in the press. Because the news stories, written on information that was supplied to newspapers, were misleading and could be misinterpreted by both the public and the profession, the Commission felt compelled to issue a strong statement.

The statement was simultaneously given to every member of C.M.A. and all newspapers and wire services in California. In addition, it was published in CALIFORNIA MEDICINE.* A number of the county medical society bulletins also printed the statement either in full or in abstract.

In essence the statement said that the test had not been proven as a cancer diagnostic test, that it still was in the research stage of development and not suitable for general use. At the present time it appears to lack specificity and to yield positive results in pregnancy, a wide variety of diseases and in patients in whom no abnormality is demonstrable. It apparently is not consistently positive in malignancy.

The Commission reiterates its strong disapproval of the release of premature and inaccurate statements relative to the various aspects of cancer. It urges clinicians and investigators alike to make certain that their releases are accurate, factual, well grounded and so phrased that they cannot be subject to misinterpretation.

The Commission wishes to express its appreciation to Dr. Dwight L. Wilbur, editor of CALIFORNIA MEDICINE, for his consistent cooperation and support of the programs of the Commission.

*California Medicine, 83:393, Nov. 1955.

The chairman desires to express his deep appreciation to the other members of the Commission and the members of the Advisory Committee for the hard work and cooperation that has been so evident this past year, and without which it would be impossible to report substantial progress. He also wishes to express the gratitude of the Commission to the Medical Director for his constructive and devoted service. The Medical Director also renders important assistance to the California Division, American Cancer Society, as Medical and Scientific Director of the Division.

Respectfully submitted,

JOHN W. CLINE, *Chairman*

COMMISSION ON MEDICAL EDUCATION

To the President and the House of Delegates:

The Commission on Medical Education has not held a formal meeting this year as it is felt there is little relationship of the committees, one to another. For the time being it is presumed that the duties of this chairman are to provide liaison between committee chairmen and the Council.

Following this method of operation, at least at the moment, I, or a designated representative, have attended meetings of the various committees and upon request, have received reports of the chairmen and transmitted them to the Council.

From time to time it is understood that appearances before the Council by individual committee chairmen will be arranged.

Respectfully submitted,

EDWARD C. ROSENOW, JR., *Chairman*

Following are reports of various committees that are included in the Commission on Medical Education:

Committee on Blood Banks

Before reporting on the activities of your Blood Bank Committee during the year 1955, it might be advisable for me to explain the dual complexion of the California Blood Bank System. It is composed of our California Medical Association's Blood Bank Committee and the twelve non-profit, medically sponsored blood banks located in the State of California. Each member of the C.M.A. Blood Bank Committee and one representative from each member blood bank has voting power, thus making a total of 24 voting members. Its clearing house and central office are located at 270 Masonic Avenue, San Francisco.

Exhibits: May 1-4, 1955—California Medical Association Convention, San Francisco. May 14-15, 1955—Northern California Medical Assistants Convention, San Francisco. August, 1955—Stanislaus County Fair, Tulare. September, 1955—Fresno County Fair, Fresno. November 17-21, 1955—American Association of Blood Banks Convention, Chicago.

I am happy to report that our display won the blue ribbon for the best administrative exhibit at the November American Association of Blood Banks Convention in Chicago. The exhibit stressed the architectural design and floor plan of each of the twelve banks comprising our System. Descriptive Blood Bank literature was distributed. Considerable interest was aroused, as evidenced by the questions asked at the exhibit and by the inquiries received later by the central office.

Meetings: February 25-27, 1955—California Blood Bank System's third annual meeting, Santa Rosa. April 30, 1955—C.M.A. Blood Bank Committee annual meeting, San Francisco. October 28, 1955—California Blood Bank System's Board meeting, San Francisco. October 29, 1955—California

Blood Bank System's special meeting, San Francisco. December 16, 1955—C.M.A. Blood Bank Committee's special meeting, San Francisco.

Highlights of the 1955 annual meeting were the presentations by Mr. Schottland of the Los Angeles Red Cross Center and Mr. Quinn Jordan of the Southwest Blood Banks' central office in Phoenix. As each of these representatives espouses a different type of blood bank philosophy from our California System, their remarks were germane and provocative.

The October 29 and December 16 meetings were called specifically to (1) discuss the changing philosophy in blood banking and (2) to evaluate the blood bank situation in Fresno and, at the latter meeting, to make recommendations on 1 and 2 to the Council of the C.M.A.

Senate Bill No. 1405: We were happy to comply with Mr. Hassard's request to be present in Sacramento on January 20, 1955 when Senate Bill No. 1405, pertaining to the Health and Safety Code, was passed. This addition to Section 1623 states that the procurement, processing and distribution of blood or its derivatives is not a sale but a service. This bill will be of great legal value to our blood banks.

Central California Blood Bank: The Fresno County Medical Society voted to create its own blood bank in Fresno and it came into production on June 8, 1955. It is called the Central California Blood Bank and is a member of the California Blood Bank System.

Clearing House: The work of the System's Clearing House is constantly expanding. A total of 269,000 transactions has been processed by the Clearing House since its inception on March 1, 1951. This expansion has been, in part, due to the demand by other blood banks in adjacent states requesting participation in our System. This step is logical and progressive and we are happy to make our unique service available, so that neighboring state banks may benefit.

Use of Blood: The use of blood in California constantly increases. Perhaps this is due somewhat to the increment to our population. In 1955 we procured, processed and administered a total of 157,000 units of blood; a marked increase from the 142,000 used in 1954.

Los Angeles Midwinter Medical Convention: It was your chairman's distinct pleasure to participate on the blood banking panel during the 85th anniversary meeting of the Los Angeles County Medical Association, presenting two papers, "Historical and Operational Aspects of the Development of Transfusions and Blood Banking" and "Present Status of the Joint Blood Council."

The Joint Blood Council: The Joint Blood Council, a newly formed national organization, composed of five agencies particularly responsible for the present procurement, preparation and distribution of blood in the nation, has recently established its headquarters in Washington, D. C. These organizations are: American Association of Blood Banks, American Hospital Association, American Medical Association, American National Red Cross and the American Society of Clinical Pathologists. Dr. Frank Wilson has been nominated to the responsible position of executive secretary of this council. For the first time in the rapidly expanding blood bank field, divergent groups have met around the council table and at long last, have voluntarily joined forces and formed this Joint Blood Council. We are happy to announce that Dr. Wilson will honor us at the Annual California Blood Bank System meeting which will be held in San Diego, February 21-24, 1956.

The year 1955 was not without its bitter and vexing problems. Personalities uninitiated in blood banking caused some dissension but these problems are being resolved. The

new year may see important progressive changes made in the entire transfusion set-up. New trends are visible. No bank or system of banks is perfect so we seek constantly to improve that which we have, in order to provide a better service.

To the President, Officers, Council, House of Delegates and each C.M.A. member goes our appreciation for their trust and aid. To all of our widely dispersed family, high praise in the knowledge that as in the past, the people of California can confidently look to them for complete blood coverage.

JOHN R. UPTON, *Chairman*

Committee on Industrial Health and Rehabilitation

The Subcommittee for the Studying of Grasping Power of the Committee on Industrial Health and Rehabilitation held a meeting in Los Angeles on December 2, 1955. A paper stressing the understanding and ability of the physician as more important than any particular instrument used, will be prepared, edited by the committee and advisory members and distributed to all doctors doing industrial work. The subcommittee will conduct further studies and trials of various instruments and at present does not formally approve or recommend any particular instrument. There will be another meeting on February 10, 1956 in Los Angeles.

Other activities in this field include: (1) Meetings covering Vocational Rehabilitation of the Industrially Injured Workman sponsored by the Industrial Section of the Los Angeles County Medical Association and the National Rehabilitation Association of Southern California. Dr. Leonard J. Yamshon, president of the latter organization, has spearheaded these meetings. (2) Exhibit on Occupational Medicine at the Cavalcade of Medical Progress in Los Angeles, January 6 to 15, arranged and staffed by physicians from the Industrial Section of the Los Angeles County Medical Association and the Western Industrial Medical Association. (3) Study by this committee of "Guiding Principles and Procedures for Industrial Nurses," Council on Industrial Health, A.M.A.—Journal A.M.A., 159-10-1028. This committee is in accord with the principles outlined in this paper.

Your chairman plans to attend the 16th Annual Congress on Industrial Health in Detroit, January 23 and 24, 1956, and will participate in the various group proceedings (State Medical Society Committees on Industrial Health, etc.) on January 22 preceding the Congress.

The Committee on Industrial Health and Rehabilitation will hold its next meeting on February 10, 1956.

JEROME W. SHILLING, *Chairman*

Committee on Medical Education and Hospitals

Members of this committee met with committees of the California Hospital Association and California Hospital District Directors in San Diego, October 4. One problem discussed appeared to be within the scope of the Committee on Legislation and the report with this suggestion was transmitted to the Council. In connection with a second problem regarding the relationship of the district hospitals to organized medicine, the Council directed that this committee deal only with an appropriate committee from the California Hospital Association.

Recently the problem of alien physicians being able to study on a residency basis has been referred to our committee. A meeting is planned on February 11, 1956 in San Francisco with the following persons or their representatives

to be invited: The staff of the California Medical Association, Mr. Howard Hassard, the staff of the California Hospital Association, Dr. Shipman, Dr. Lunn, Dr. Rosenow, the members of our Committee (Whitcotton, Macpherson, Bosworth and myself), Dr. John Sampson, Dr. Edwin Bruck, Dr. Morrissey and the current President of the San Francisco Medical Society Board of Directors, to explore this subject. Advance discussions have already been held with Mr. Howard Hassard and members of the California Medical Association staff. Following the meeting, recommendations will be forwarded to Chairman Rosenow for presentation to the Council.

HAROLD G. TRIMBLE, *Chairman*

Committee on Mental Health

This committee has just been appointed during December, 1955, and no meeting has been held as yet. A separate subcommittee consisting of Drs. Edwin L. Bruck, chairman, Karl Bowman and E. E. Wadsworth, has also recently been named. They will meet in the near future with Dr. Walter Rapaport, State Director of Mental Hygiene, on the question of the proposed legislation to establish mental health clinics.

H. L. GARTSHORE, *Chairman*

Committee on Postgraduate Activities

During the past year your Postgraduate Activities Committee has continued the program underway since 1950. During the year the undersigned has acted as chairman of the committee, assisted by Herbert W. Jenkins of Sacramento, John E. Young of Fresno and, as of July 1, ex-officio members for the medical schools were added as follows: Seymour M. Farber, University of California, San Francisco; Jay Ward Smith, Stanford University; Phil R. Manning, University of Southern California; Thomas H. Sternberg, University of California, Los Angeles; and Harold M. Walton, College of Medical Evangelists. C. A. Broadbuss of Carmel has continued to serve as director of Postgraduate Activities. On July 1 Mrs. Margaret H. Griffith was added as assistant director of Postgraduate Activities.

We have conducted five two-day Postgraduate Regional Institutes in five regions of the state, each comprising several county medical societies as follows: One each at Santa Rosa for the North Coast counties; Yosemite Park for San Joaquin Valley counties; at Santa Barbara for the West Coast counties; at Palm Springs for Southern counties; and at Lake Tahoe for Sacramento Valley counties. The fee is \$10 to attend any one or all of the institutes. Total registrations were 565 with many physicians attending two or more institutes. The academic program at each institute is offered by one of the five medical schools after consultation with the local regional committee representing the various county medical societies. We are especially indebted to the five postgraduate directors of the medical schools, their fine faculties for the excellent programs they have furnished, and to Regional Chairmen Allen F. Sterling, San Bernardino; J. Leslie Spear, Santa Rosa; Max Hammel, Santa Barbara; Byron Evans, Fresno; and Charles H. Cutler, Sacramento, and their committees for their unstinting efforts in handling all details ensuring the success of these conferences. The presidents and committee chairmen of the Woman's Auxiliaries have assisted greatly with registration and entertainment of wives during the programs.

Circuit Courses, consisting of lectures and conference; four in spring and four in fall, were put on in the northern part of the state in Ukiah, Eureka, Woodland, Napa, Duns-

muir, Chico, Marysville and Auburn by faculty groups from the University of California and Stanford University Schools of Medicine. One hundred and twenty-five registrants paid \$25 each for these courses. Many feel that this intimate semi-individual type of instruction is the best offered by the committee. We are grateful to Dr. Seymour Farber of University of California and Dr. J. Ward Smith of Stanford and their faculty members who arranged and presented the programs. Local chairmen for Circuit Courses are to be thanked for their unusual efforts which include not only organization but actual collection of fees, rendering financial and other reports. During the fall, at the suggestion of Associate Dean J. Ward Smith of Stanford, several resident physicians from the University of California and Stanford University accompanied instructors on the circuit tours. This project was financed by the Public Relations Department of the C.M.A. Early reports lead us to believe this innovation was most successful and we will plan to continue it in the future.

An ever-enlarging *Medical Dates Bulletin*, a monthly publication listing all postgraduate assemblies and medical meetings given in the state, has been published by this committee for the past three years. The *Bulletin* mailing list of nearly 1,000 includes presidents and secretaries of all medical organizations in California, hospitals, medical schools, libraries, etc. Though the *Bulletin* is published monthly in CALIFORNIA MEDICINE, the listing has recently been offered for publication to all county societies in the state and many county bulletin editors are publishing all or part of *Medical Dates Bulletin*.

In March, the Annual Postgraduate statewide all day conference was held in San Francisco attended by over 30 doctors including the five medical school postgraduate directors, regional representatives from all parts of California, representative from the Academy of General Practice and other medical organizations, and members of your standing committee. This is a unique and important meeting at which work of the past year is reviewed and plans for the coming year are made.

New activities include aid and support to medical schools in publicizing their postgraduate courses and reporting to them requests for intra and extra mural courses made by various physicians and organizations in the state. Coordination of postgraduate courses and medical meetings has been discussed by the committee and we plan for more effort in this direction in the future.

Your chairman, on behalf of this committee, assisted in program planning for the Monterey County Heart Association Symposium given in Monterey November 30 and December 1, and our office assisted them with organization and completion of the program. It is planned to offer the services of our committee to other organizations needing this type of assistance.

Your chairman attended the meeting of the States' Medical Postgraduate Association in Atlantic City on June 5, 1955. A vote of thanks was made to Dr. C. A. Broadus for his work as secretary-treasurer of this organization for the past three years.

Dr. Broadus again built the Postgraduate Exhibit for the C.M.A. Convention in San Francisco May 1 to 4 which received much favorable attention.

I wish also to thank members of our committee: Herbert Jenkins for his valuable services in connection with the Northern Circuit Courses and in planning the Sacramento Valley Counties Institute, and John E. Young in assisting with the San Joaquin Institute, in addition to their attendance and help at all committee meetings and the statewide conference.

EDWARD C. ROSENOW, JR., *Chairman*

COMMISSION ON MEDICAL SERVICES

To the President and the House of Delegates:

The Commission on Medical Services has continued its work during the past year and through its newly created subcommittees has enlarged the sphere of its studies.

At the last meeting of the House of Delegates a resolution (No. 6), was adopted which requested the Commission on Medical Services to study and report on the feasibility of establishing the normal private fees of individual physicians as the medical indemnity payments under California Physicians' Insurance Corporation, and recommended that selected experimental subscriber groups be started as a practical aid to this study. This resolution has been referred to the Subcommittee on Medical Economics of the Commission for intensive study.

A correlated resolution (No. 13) was also referred to the Commission and to the same committee for study.

A new field of study undertaken this year is Maternal and Fetal Mortality Studies and Medical Services rendered to Armed Services' Dependents. The Commission has continued its work in the fields of (1) Relative Value Fee Studies, (2) Medical Care of the Indigent Groups, (3) Problems of the Aged.

Much has been accomplished but much remains to be done. Since we are a study commission, progress is at times slow. Nevertheless, the last year has seen the Relative Value Survey nearing completion and the Medical Indigent Program taking shape. Both of these subjects, the Commission feels, are extremely important steps in the overall picture of the practice of medicine in California. Standardized claim forms have been developed and distributed to the doctors of California. We feel that the use of these forms will make claim reporting much easier and simpler.

The Commission wishes to take this opportunity of thanking those many individuals, who have contributed their time in assisting us with our studies.

Following are reports of committees that are included in the Commission on Medical Services:

Committee on Fees

During the past year, the Committee on Fees of the Commission on Medical Services has continued work preparing a relative value schedule.

The tabulations of the state survey were completed and with the assistance of a special committee, the complete study has been derived.

This schedule has been broken up into four separate categories and relative values assigned to each classification to the best of our ability. We have drawn up a schedule for medical services and assigned relative values to each item listed within that service; a second schedule for surgical services and assigned relative values to each item pertaining to that service; a third schedule listing all services peculiar to x-ray and x-ray therapy and assigned relative values to each item and a fourth schedule listing services peculiar to bacteriology, pathology and allied services and assigned relative values to each of these services.

We have submitted this material to the individual county medical societies and to organized groups of physicians throughout the state for their study and comment.

In summary, therefore, we have drawn up a listing for all medical services encompassing the practice of medicine as it exists today and have distributed this material to certain physicians throughout the state for their study and comments. We are awaiting the approval or disapproval of these various groups before we will submit our final report.

FRANCIS J. COX, *Chairman*

Committee on Indigent Care

At the May meeting of 1955, your Medical Services Commission reported its interest in, and consideration of a prepaid insurance program for the medical care of the certified indigent. We reported further our request to the Council that the C.P.S. Board of Trustees be urged to study the actuarial feasibility of such a program, under which the certified indigent would receive medical care locally from the personal physician of choice.

It can be reported today that C.P.S. actuarial studies have clearly demonstrated the feasibility of such an approach to the indigent medical care problem. While the actuarial risks involved in the indigent population differ radically from those encountered in the average commercial group—mainly due to the large concentration of persons over age 65—the incidence and pattern of illness and injury, within a given group, can be evaluated.

The C.P.S. actuarial ground work is nearly completed in so far as over-all risk evaluation is concerned, yet no formal presentations of a specific prepaid insurance proposal have been made to any county government. The work done thus far has been preliminary and exploratory. In some counties, Marin, Butte, Humboldt for example, certain selected county officials have been invited by the medical societies to meet informally with representatives of the county society and of C.P.S. to discuss the general subject of a prepaid insurance approach to the medical care of the indigent. Generally, the response of the county government participants has been friendly, open minded, but cautious. In one county the county officials felt that the insurance approach with a fee-for-service based upon the C.P.S. Schedule A, and free choice of physician, would greatly increase present costs and thus be unfeasible so far as the county was concerned.

In general, the consensus of opinion among the county officials who participated in informal discussions of the subject, was that the cost of a prepaid program for the indigent should be closely comparable to present expenditures.

The matter of cost comparability presents a problem. Customarily, county expenditures for indigent medical care are scattered among the various departmental budgets and are difficult to assemble in one total figure without a detailed audit of all "process paper." Further, "special need" allowances made to eligible recipients are frequently not vouchered to indicate the specific purpose for which the allowances were granted. Some, and perhaps a considerable number of "special need" allowances are expended for medical care, or relayed goods or services, but in the absence of voucher annotation, the amount so expended can only be estimated. Another cost factor not reflected by county expenditures is the gratuitous outpatient service rendered by many physicians to members of the certified indigent group. These services, if budgeted, as are other services and goods provided to the recipients, would amount to a considerable figure. For these reasons, it has not been possible, thus far, to develop county cost figures inclusive enough to lend themselves fairly to comparison with those developed by C.P.S. upon the basis of an actuarial evaluation of a specific indigent group. Accordingly, it has seemed prudent to seek the cooperation of interested counties and county medical societies in developing valid cost figures and to defer concrete proposals to any county, pending further study of present expenditures.

It is recognized that such study should include the evaluation of cost *savings* which might be effected, not only in the area of county hospital operational costs, but in the

area of future hospital construction costs, through the operation of a complete prepaid outpatient program, including specialist, and diagnostic lab and radiological services. Circumstances beyond our control sometimes result in the hospitalization of county patients for the treatment of conditions which do not, medically speaking, require hospital care. There are circumstances which prolong county hospital stay for diagnostic work-up and for postoperative care. The extent to which these circumstances can be abridged by a comprehensive outpatient program can only be estimated at this time. However, the experimental outpatient program in the Gridley area strongly suggests that substantial savings to the counties can be effected in hospital operational and future construction costs through this approach.

In view of the significance of the private practice of medicine of population age trends, economic developments and social security proposals, it seems that intensive study of the indigent care problems should continue.

H. L. CAREY, *Chairman*

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Committee on Maternal and Child Care

The committee was activated by the Commission in December, 1955. The State Department of Public Health has requested that the California Medical Association consider the formation of a Maternal and Prenatal Mortality Committee. This problem has been studied by the Commission and referred to the Committee on Maternal and Child Care. The committee is planning a serious study of this matter.

A second subject referred to this committee by the Commission was the investigation and the correlation of the medical services as rendered by all government services to dependents. This study is now in progress.

DONALD C. HARRINGTON, *Chairman*

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Committee on Medical Economics

At the request of the House of Delegates, the Commission on Medical Services undertook a pilot study in two counties to determine if information on the cost of obtaining a medical education, conducting a practice and of obtaining some form of tax relief for physicians was feasible. This study was made in Santa Clara and Riverside counties and was limited to men in general practice. An industrial survey firm was retained to make the study and to analyze the results.

The report of this firm was considered by the Commission and referred to this committee for further study. Our report to the Commission, stated that while an expansion of the study to cover the entire state and all specialties of medicine would yield more precise and comprehensive information, the expense would not warrant the continuation of the study on such a scale since the primary motivation for the study was the possibility of using it as a basis for seeking tax relief in the form of deductions of an appropriate part of the cost of professional education. At present, knowledge of the high cost of such an education is widespread. This fact is of indirect value to the profession and your committee believes that it would not be to the profession's benefit to delve more into this matter.

The committee recommended that the study not be extended. This recommendation was accepted by the Commission.

EMMET L. RIXFORD, *Chairman*

Committee on the Problems of the Aged

For some two years much work has been done gathering information, combining and preparing it for the Commission's acceptance. Such acceptance hinges upon a proper plan, which when developed will be channeled through the necessary organized medical bodies.

Problems of the aged are multiple and although much has been accomplished by the several meetings, the final philosophy, which is necessary to develop proper governing standards, has not been passed upon by the Commission.

No further report is feasible at this time. It is hoped that during 1956 a full and complete program may be suggested to solve these most important problems for the profession.

E. R. LAMBERTSON, *Chairman*

The foregoing reports by the committees give a summary of the activities of both the Commission and its Committees in the past year.

It is anticipated that careful and thoughtful consideration of the various subjects which are before the Commission will result in better medical care for the patient.

I wish to take this opportunity of thanking the members of the Commission for their unfailing loyalty and hard work during the past year.

Respectfully submitted,

HOLLIS L. CAREY, *Chairman*
Commission on Medical Services

COMMISSION ON PROFESSIONAL WELFARE

To the President and the House of Delegates:

The Commission on Professional Welfare is made up of the following committees:

1. Health and Accident Insurance Committee.
2. Medical Review and Advisory Board.
3. Unlawful Practice Committee.

Health and Accident Insurance Committee: The Health and Accident Insurance Committee has continued its disability insurance program, including various coverages from immediate, a 30-day waiting period, and a catastrophic type of coverage with a six month waiting period. This program continues to be well received by physician members of our C.M.A.

Medical Review and Advisory Board: The Medical Review and Advisory Board has had several meetings. As a result, the board has published "Recommendations and Specifications to County Medical Societies for a Group Malpractice Insurance and Prevention Program." These specifications have been forwarded to the constituent county medical associations together with information that the Medical Review and Advisory Board will provide the necessary copies of this paper for all members of a county association, if the officers so desire. In addition, the Medical Review and Advisory Board has advised with negotiations for group malpractice policies at county level with the Northern California group of counties and Riverside County. The executive secretary of the board is presently engaged in setting up procedures for the collection of insurance malpractice coverage statistics throughout the state. A more or less regularly recurring section for the Medical Review and Advisory Board, devoted to information and education of physicians on this subject, began in the November issue of CALIFORNIA MEDICINE.

Reference is made to the Medical Review and Advisory Board section in the December 1955 issue of CALIFORNIA MEDICINE for full details concerning the organization and purposes of the board.

Unlawful Practice Committee: No business has come before the Unlawful Practice Committee, and consequently no meetings have been held during the current year.

Respectfully submitted,

JOSEPH F. SADUSK, JR., *Chairman*

COMMISSION ON PUBLIC HEALTH AND PUBLIC AGENCIES

To the President and the House of Delegates:

The Commission on Public Health and Public Agencies was established by the House of Delegates in the May 1955 meeting. In the past few months the activities of the various committees have continued, there has been no formal meeting of the Commission of Public Health and Public Agencies and as such cannot submit a report at this time.

However, an interim report of the subcommittees is submitted.

The Committee on Rural and Community Health: This committee has been actively interested and participating. The second annual California Council on Rural Health was held at the Fresno Hacienda, Fresno, California, on January 21 and 22, 1956. This committee has also interested itself on the preceptorship programs in California. This chairman is planning to attend the National Council on Rural Health to be held in Portland, Oregon, in March 1956.

Committee on School Health: This committee has been extremely active, having engaged in the Regional Conferences on physicians and schools. Four of these meetings have been arranged. Additional work is going along to arrange an additional fifth meeting. The committee is anticipating, under the direction of Dr. Daniels, to hold a second statewide conference on physicians and schools in the fall of 1956. Every county medical society has through their secretaries made contact with certain schools, nurses and other interested parties for these meetings.

The Military Affairs and Civil Defense Committee: The activity of this subcommittee was the preparation of a vital issue in CALIFORNIA MEDICINE on evaluating defense, which was published during the year of 1955.

The State Medical Services Committee: This committee has been extremely active throughout the year participating in the various activities of the State Public Health Department and serving in an advisory capacity on the Crippled Children Services, program for Gamma-Globulin and Salk vaccine and also serving in an advisory capacity on the committee for the Morbidity Research Program.

At the present time the committee is working on the problem of attracting professional personnel for state institutions, and in conjunction working with the State Department of Mental Hygiene.

The Committee on Veterans Affairs: This committee under the direction of Dr. B. Henning has reviewed a number of resolutions either proposed or adopted at the organization meeting of the Reserve Officers Association and at the 56th Encampment of the Veterans of Foreign Wars. As of June 30, 1955, California had an estimated 1,886,000 veterans residing within the state. Of this number 1,253,000 are World War II veterans; 305,000 World War I veterans and 309,000 of the Korean conflict. Due to the influx of population in California accurate figures on the number of veterans in the state are difficult to figure. Some estimates would place the current number at two or more millions. The average age as of June 30 of all veterans in the country, was 38.3.

The Committee on Other Provisions: Has not held any meeting to date and nothing to report as of this time.

Respectfully submitted,

FRANCIS E. WEST, *Chairman*

COMMISSION ON PUBLIC POLICY

To the President and the House of Delegates:

Following are the reports of the two committees included in the Commission on Public Policy:

Committee on Public Relations:

[Because of the early deadline for committee reports, this resumé comes from the Director of Public Relations. With the permission of the President and the members of the House of Delegates, the Committee on Public Relations, Donald D. Lum, chairman, would like the privilege of making a supplementary report from the floor at the 1956 meeting of the Association.]

Following the recommendations of the "Murray Committee" that "means be found to provide a more adequate and meaningful indoctrination program for physicians whether they be recent medical school graduates or physicians coming from other areas into California," your PR department has prepared and distributed to all county societies a most comprehensive plan for additional indoctrination stress. It is being used, we believe, to considerable advantage. Several other states have requested permission to copy all or parts of the suggested program.

The two Public Relations and Office Management Conferences for students, residents and interns held each year, one in San Francisco, one in Los Angeles, have, through the cooperation of the physician-speakers, been of great value in furthering the indoctrination program. Because of the agreed success, it is planned, of course, to continue these conferences.

A 1955 resolution called for an educational program on the advantages of deductible insurance. Too few "tools" are at our command at the moment to successfully execute this proposal. If, through the cooperation of the Medical Services Commission and Blue Shield, an insurance policy acceptable to all the profession could be developed, we would welcome the opportunity to engage in an all-out effort to educate—and sell—the public.

The department is continuing to have excellent professional cooperation in the dissemination of literature beamed at strengthening our grass roots public relations program.

These "Personal Messages" from the physician to his patient telling where he can be reached in an emergency, his willingness to discuss fees in advance of service, the cost of *good* medical care and his support of voluntary health insurance, have been made available, on *order* by the physicians for the second year. Thus far, more than four million have been *ordered*.

The *Health Record*, a 12-page booklet, which is supplied to physicians on order, providing a continuous health record of a child from birth through age 15, has enjoyed equal popularity. Parent-Teachers Associations, farm groups and others have aided the profession in the distribution of the *Health Records*.

In one sense, A.M.A.'s plaque, since it declares:

"To All My Patients—I invite you to discuss frankly with me any questions regarding my services or my fees. The best medical service is based on a friendly, mutual understanding between doctor and patient," may be considered a very valuable "insurance policy." The plaque, made available at no cost, is now on display in more than one-half of the California offices.

More recently the department has made available to county societies a localized circular telling of the services of the society; emergency medical care, medical care re-

gardless of ability to pay, the operation of the Public Services Committee and of the participation of the physicians in community affairs and the service given gratis at county hospitals and other institutions.

Since one county alone has ordered 250,000 for distribution to the public, the professional acceptance of this type of public relations cooperation is most obvious.

During the past 12 months it has been our pleasure to cooperate and assist the Medical Services Commission, Cancer Commission, Commission on Medical Education, Blood Bank Committee and to aid in the publicity and the planning of the annual Physicians and Schools and the Rural Health Conferences.

Much of the detail work in connection with the Committee on Postgraduate Activities has been transferred to C.M.A.'s Los Angeles office. It is being handled without addition to personnel.

Members of the department have had the honor of accompanying either the President or the President-elect and the Councilor for the respective district to meetings of all the 40 component societies.

These annual visits, in our opinion, are of great mutual value since all segments of C.M.A. are brought into closer liaison. Contact between the elected representatives of C.M.A. and the county officers also provides an opportunity to assess the progress of the grass roots public relations program.

At this point we wish to thank the county society officers for arranging these annual meetings to best conserve the time of the visiting C.M.A. representatives.

As always, your department has been at the service "on call" to all societies.

* * *

While some national magazines have published articles critical of the profession, none of this material has had its origination in California and there has been no adverse editorial criticism in *any* California periodical of importance.

* * *

On behalf of my associate Mr. Glenn W. Gillette and the undersigned, this report is

Respectfully submitted,

ED CLANCY, *Director of Public Relations*

✓ ✓ ✓

Committee on Legislation:

The California State Legislature met in regular session during the year 1955 and during this session many bills were presented affecting the practice of medicine. These bills are too numerous and detailed to mention specifically in this report. Your Legislative Committee, with the usual very excellent help of Mr. Ben Read, Mr. Gene Salisbury and Mr. Howard Hassard, closely followed all of these various measures affecting medicine.

Since the close of the regular legislative session your committee and its able assistants have directed their attention to the numerous legislative activities affecting the doctors of California. Numerous interim committees of the Assembly and the Senate are, during this period, studying matters affecting the practice of medicine. Likewise several elections have been conducted during this period to fill vacancies in both the Senate and the Assembly. Your committee is directly interested in the attitude of the various candidates. Specifically we make every effort to determine whether the candidates favor good public health measures and good medicine.

Respectfully submitted,

DAN O. KILROY, *Chairman*

REPORTS OF STANDING COMMITTEES

AUDITING COMMITTEE

To the President and the House of Delegates:

The budget for the fiscal year 1955-56 was presented to the Council at the annual meeting in San Francisco, May, 1955.

The budget for 1956-57 is now under preparation and will be presented at the next annual meeting. Expenditure items were reviewed month by month.

An audit by a certified public accounting firm found all records of the California Medical Association in good order. This report will be found as part of the report of the Treasurer.

Respectfully submitted,

IVAN C. HERON, *Chairman*

COMMITTEE ON SCIENTIFIC WORK

To the President and the House of Delegates:

The Committee on Scientific Work met twice during the past year and each time with the section officers.

Following the action of the House of Delegates, two new sections were created: Orthopedics and Eye. While this tends to fragment the annual meeting more, it does offer the advantage of having small groups of doctors being able to hear and see papers given by the various specialists.

In an attempt to consolidate the meeting somewhat, each section which did not have an official guest speaker was requested to limit itself to a half-day meeting, all others to be joint meetings with the other sections.

An innovation this year is the holding of the meeting at the Ambassador Hotel in Los Angeles, where the Auxiliary and the Association may have all their meetings under one roof. It is hoped that the resort atmosphere of this meeting place will be conducive to even better meetings than have been held in the past.

The Committee wishes to thank Mrs. Barbara Rooney and Mr. Robert Thomas for the great amount of time and effort they put in on the arrangements for the annual session, and Mr. Robert Edwards for his assistance with the press arrangements.

Respectfully submitted,

ALBERT C. DANIELS, *Chairman*

REPORT OF MEDICAL EXECUTIVES CONFERENCE

To the President and the House of Delegates:

The Medical Executives Conference, formerly known as the Advisory Planning Committee, has met regularly during the past year. Its meetings are timed one day ahead of Council meetings, so that members of the conference may review the business to come before the Council and may, if they wish, remain over to attend the Council meetings.

The conference is advisory only in nature and its decisions are reported to the Council for consideration; minutes of the Council meetings, as regularly published, reflect the actions of the conference.

In the past year the conference has been chiefly concerned with matters of public relations and various aspects of medical economics brought to its attention by its own members or by the several commissions and committees of the Association. This form of reporting is particularly effective in bringing to the attention of the county society executive

secretaries the many items confronting the Association; a direct line of communication is established that otherwise would be extremely difficult to create.

The conference has been fortunate in the past year in adding two new members, Mr. Tom DeVere, executive secretary of the Stanislaus County Medical Society, and Mr. Clark Donmyer, executive secretary of the San Bernardino County Medical Society. It has regularly been the policy of the conference, and of the C.M.A. Council, to make such additions as additional county societies employ full-time executive secretaries.

Respectfully submitted,

JOHN HUNTON, *Chairman*

REPORTS OF SPECIAL COMMITTEES

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

To the President and the House of Delegates:

The year 1955 has seen two meetings of the House of Delegates of the American Medical Association in which California was represented by a complete delegation.

The regular annual meeting of the American Medical Association held in Atlantic City found our own Dr. Dwight Murray of Napa, California, elected President-elect of the American Medical Association. I don't believe there has ever been a more popular candidate. Dr. Murray has been outstanding in his services to organized medicine for such a long time that there was practically an ovation when he was nominated. Dr. E. Vincent Askey was elected Speaker of the House of the American Medical Association. This was no surprise as Dr. Askey has been Vice-Speaker for some time and when Dr. Reuling decided that he would run for a trustee it was the natural thing that Vince should be the popular choice for Speaker of the House. He was unopposed and his nomination was received with a great deal of applause by the entire House of Delegates.

The interim meeting in Boston in December saw a full complement of Delegates: Drs. Alesen, Askey, MacDonald, Green, Fraser, Davis, Hoffman, Ludwig, Foster, Feldmayer, McClendon, Cass, and Ward. Alternates: Henry Gibbons and B. J. Price were present and participated in all of the activities of the delegation. The meeting was short and there was no great controversy as the issues were clear cut and understandable.

We are planning on a rousing send-off for Dr. Murray when he becomes President next June and I am sure the California delegation will be as usual out in front for the entire meeting.

Respectfully submitted,

DONALD CASS, *Chairman*

COMMITTEE ON HISTORY AND OBITUARIES

To the President and the House of Delegates:

When this report appears CALIFORNIA MEDICINE will have carried notices of the deaths of 24 members in the latter part of 1954 and of 118 in 1955, reported to December 15th, a total of 142, or three more than last year. Among these departed are many who were prominent in the profession in their community, and some whose work had become well recognized beyond the borders of our state.

The annual appeal of your committee is being made to our members for historical material to be incorporated into the history of our society. This applies particularly to

records of the smaller component societies of the state organization. It is planned to begin work upon the history within the year.

Respectfully submitted,

J. MARION READ, *Chairman*

REPORT OF THE PHYSICIANS' BENEVOLENCE COMMITTEE

To the President and the House of Delegates:

The Physicians' Benevolence Committee has been operating as a special committee during the past year, pending approval and inaugural operations of the California Physicians' Benevolence Corp. This corporation has been established but will not actually start operating until its formation is approved by the House of Delegates.

During the calendar year 1955, the committee has received \$17,565, of which \$12,875 came from the California Medical Association and \$3,350 from the Woman's Auxiliary. Interest on securities held by the committee amounted to \$1,340.

Benefits paid out during the year totaled \$7,900, of which \$6,000 was sent to the Los Angeles County Physicians' Aid

Association and \$1,900 was paid direct to needy physicians.

At the end of the calendar year the Benevolence Fund showed a balance of \$77,841, of which \$68,843 was invested in U. S. government obligations and \$8,998 was in cash available for the payment of benefits.

The committee believes that the new corporate form of setup will bring a decided advantage to the fund and to the county chapters of the Woman's Auxiliary. If the corporation can be declared a charity and made subject to tax exemption, auxiliary chapters may then stage benefit parties without the need of adding federal taxes to their admission prices. Such taxes have, in some cases, taken the entire profits from such benefits.

The thanks of the committee are extended to the Woman's Auxiliary for its constant assistance, both in raising funds for this worthy activity and in locating and working up cases of need. Dr. Elizabeth Mason-Hohl and Dr. Ford Cady have continued their prompt and gracious consideration of cases brought before the committee and it is believed that the entire operation has been smooth and meaningful. The same type of operation is planned under the new corporation.

Respectfully submitted,

AXCEL E. ANDERSON, *Chairman*

PRESIDENT'S DINNER DANCE

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Cocoanut Grove, Ambassador Hotel, 8:00 p.m.

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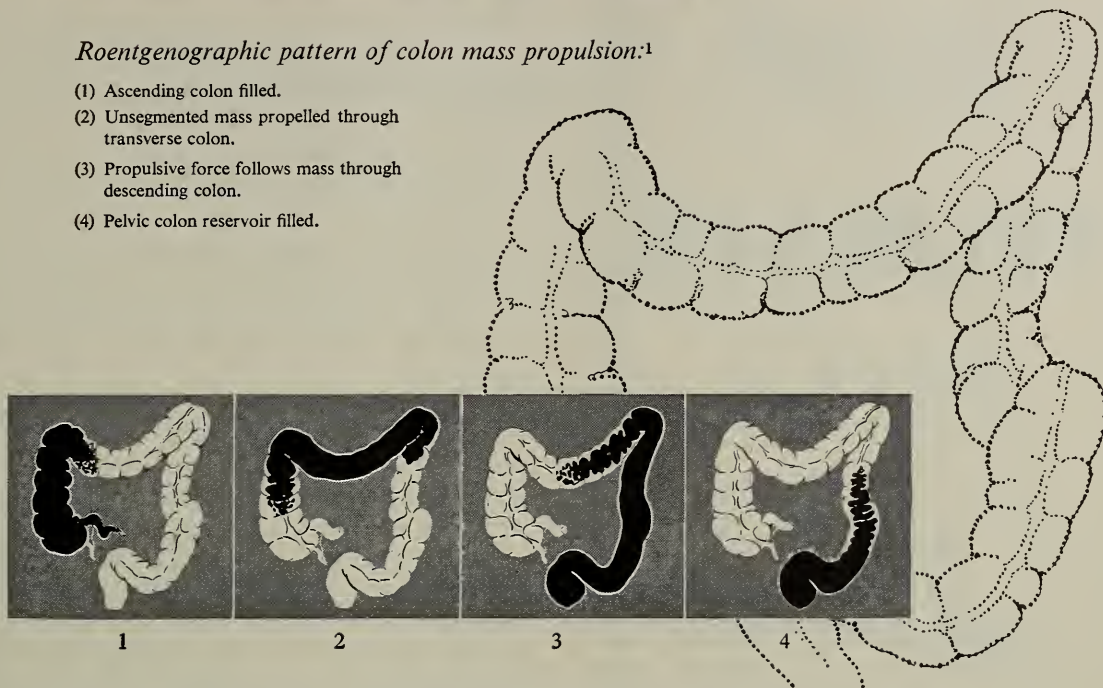
- *Members should bring membership cards for identification.*
- Non-member physicians will be registered upon proper identification.
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- Dentists (D.D.S.), doctors of veterinary medicine (D.V.M.), dietitians and allied public health personnel will be registered upon proper identification.

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1. Best, C. H., and Taylor, N.B.: *The Physiological Basis of Medical Practice: A Text in Applied Physiology*, ed. 5, Baltimore, The Williams & Wilkins Company, 1950, pp. 579-583.

2. Bargen, J. A.: A Method of Improving Function of the Bowel, *Gastroenterology* 13:275 (Oct.) 1949.

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Vitamin B ₁₂	15 mcgm.
Folic Acid	3 mg.



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Diphtheria Control Can Be Improved

A two-year Canadian study indicates that there are good ways of stopping up the "chinks in our immunization armor" against diphtheria.

Two important methods are inoculation within the first six months of life and the use of "guinea pig tests."

The study, by Louis Greenberg, Ph.D., Ottawa, and Rene Benoit, M.D., Montreal, appears to be the first real proof that the guinea pig tests are an accurate way of telling how effective an individual diphtheria toxoid will be in humans.

The researchers gave diphtheria shots to infants from two to six months old and to guinea pigs. Comparison of the results in the two groups "clearly" showed that the guinea pig test is a valid indicator of a toxoid's value for man, they said in a recent issue of the *Journal of the American Medical Association*.

Lack of standardization of various companies' products and occasional outbreaks of the disease indicate that there are still some weaknesses in the control of diphtheria, they said.

"There is, therefore, every reason for continued and increasingly vigorous programs of immunization. For this purpose, it is important that only the most effective toxoids be used," they said.

These can be obtained by utilizing the guinea pig test, establishing the most effective dose for humans, and setting up a program of toxoid standardization, the researchers said.

The study showed that the response in infants to the diphtheria toxoid was related to the size of the dose given—the bigger the dose, the greater the immunizing effect. However, too large doses are wasteful and sometimes can produce an adverse effect. Further study is necessary to establish the most effective dose for man, they said.

Alum adsorbed toxoids should be used instead of plain fluid types for more effective control, they said. The scientists found that the fluid preparations, even when given in three doses, were not as effective as the alum types. In addition, many infants do not return to health clinics for their second or third inoculations.

Most newborn babies have a natural immunity to diphtheria during the first months of life, but only 41 per cent of 237 infants, ranging in age from two to six months, studied had any natural immunity. Their study added further proof of the "validity and desirability" of starting the immunizing of infants during the first six months of age, the authors said.

Dr. Greenberg is chief of the Biologics Control Laboratories, Laboratory of Hygiene, Department of National Health and Welfare, Ottawa. Dr. Benoit is assistant professor of pediatrics at the University of Montreal and chief pediatrician at Creche de Misericorde, an orphanage, where the study was conducted.

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Iron (Ferrous Sulfate, Dried).....	20.0 mg.
Copper (Sulfate)	0.67 mg.
Iodine (Potassium Iodide)	0.15 mg.
Manganese (Sulfate)	2.0 mg.
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Defense Department Asks Pay Raise For Medical Officers

The Defense Department is asking Congress to change the law to permit the crediting of 5 years of medical education and internship for all physicians entering the services, as well as for doctors now on active duty. This would result in (1) the commissioning of medical officers as captains instead of first lieutenants, (2) pay increases for most medical officers, averaging \$50 per month and ranging from \$125 for the lowest grade to \$31 for higher grades, and (3) the crediting of one additional year toward future promotions. The changes would

cost about \$8.4 million a year. Defense Department cited a survey showing the chief reason for resignations to be low pay compared with civilians. It is said the average pay of civilian doctors in federal posts is \$1,400 to \$2,600 higher than that of comparable military doctors. As additional evidence that improvements are needed, the department said that in the three-year period ending in June of last year, 19,935 physicians and dentists entered service, while 22,340 left. Congress was told that present high turnover among military medical officers creates "demoralizing and unsatisfactory conditions" and is "extremely expensive."

—A.M.A. Washington Letter



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Riboflavin (B ₂)	2.5 mg.	Vitamin K (Menadione)	0.5 mg.
Niacinamide	25 mg.	Vitamin B ₁₂	1 mcgm.

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Further Drug Experiments May Explain Epilepsy

A new drug, which almost completely controlled epileptic seizures in 34 of 126 patients, eventually may help explain the physiological basis of the seizures, three Boston physicians stated recently.

The drug acetazolamide (Diamox) caused a 90 to 99 per cent reduction in seizures in 12 other patients, a 50 to 90 per cent reduction in 22, and a smaller reduction in the remaining 58, the doctors said in a recent issue of the *Journal of the American Medical Association*.

Epilepsy is characterized by sudden disturbances of brain function, resulting in temporary loss of consciousness. The attacks range from minor to major ones. It may have a hereditary basis or have other causes, including brain injury, a disease in another organ which acts on the brain, emotional disturbances, and alcoholism.

In the past it has been found that changes in the amount of carbon dioxide in the blood, which affect the body's acidity, influence the course of epilepsy. An increase in acidity has been helpful for young persons and certain other types of epileptics. This acidosis has been achieved by diets, inhalation of carbon dioxide, and other methods, but all of them have been limited in use.

The physicians based their investigation on an-

other method of reaching acidosis: Stopping the action of carbonic anhydrase. This agent combines carbon dioxide and water to form carbonic acid, thus helping to maintain the balance of carbon dioxide in the blood. They felt it worthwhile to see if a potent carbonic anhydrase inhibitor could produce the desired change in carbon dioxide level, and thus control seizures.

They also felt the study would give a clue to the reason acidosis affects epileptic seizures and whether the action results from general acidosis in the system or from the action of carbon anhydrase in the nerve cells.

Acetazolamide, the carbonic anhydrase inhibitor they used, did result in patients' improvement, although it did not answer these questions. However, the physicians said further research with it may show more about the drug's effect on the chemical and physical changes in normal and abnormal brain tissue. This in turn may show the difference between the two types of tissue and explain the action of epileptic seizures, they said.

Acetazolamide was given to 82 patients below the age of 12, 24 between the ages of 12 and 19, and 20 over the age of 20 for periods ranging from three months to three years.

The degree of improvement was not related sig-

(Continued on Page 68)

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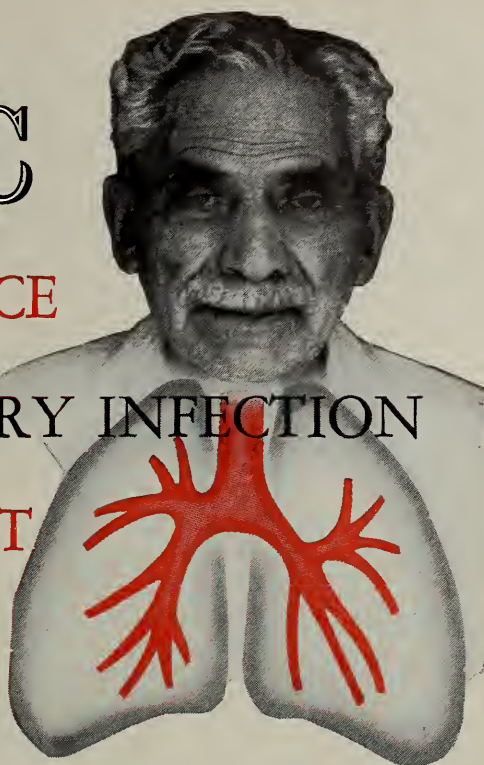
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NOTE: Clinical experience shows that success in restoring capillary integrity is in direct ratio to adequate dosage.

The film, **CLINICAL ENZYMOLOGY**, is available for showing at medical meetings upon request. And be sure to watch for the Med-Audiographs, a series of recorded clinical discussions.

REFERENCES: 1. Griffith, J. R., Jr. and Lindauer, M. A.: *Am. Heart J.* 28:758, 1944. 2. Gale, E. T. and Thewlis, M. W.: *Geriatrics* 8:80, 1953. 3. Martin, G. J. (Editor): *Hesperidin and Ascorbic Acid. Naturally Occurring Synergists*: Basle, Switzerland, Messrs. S. Karger 1954. 4. Drezner, H. L., et al: *Am. Pract. and Dig. of Treatment* 6:912, 1955.

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Further Drug Experiments May Explain Epilepsy

(Continued from Page 64)

nificantly to a personal history of brain damage, a family history of epilepsy, or to the type of seizure, but seemed to be based on individual reactions, they said.

None of the patients was made worse by the drug, nor did any abnormalities of blood, urine, or bone develop. Unfavorable side effects most frequently

reported were drowsiness, loss of appetite, and irritability, while favorable effects included improvement in behavior, sleep, and alertness.

The report was made by Drs. Cesare T. Lombroso, Douglas T. Davidson, Jr., and Maria L. Grossi-Bianchi from the seizure unit of Children's Medical Center, and the department of pediatrics, Harvard Medical School, Boston. The study was aided by a research grant from the Institute of Neurological Diseases and Blindness, National Institutes of Health, Bethesda, Md.

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on Page 92 of Advertising Section.*

Parkinson's Disease Therapy Outlined

Two advances in the treatment of Parkinson's disease were reported in a recent issue of the *Journal of the American Medical Association*.

The drug ethopropazine (Parsidol) hydrochloride was called by a group of New York researchers "an outstanding addition" to the treatment available for Parkinson's disease, sometimes called "shaking palsy."

Reported in another article was the development of electronic apparatuses which measure the effectiveness of medicine by checking the amount of tremor and muscle rigidity (both major manifestations of the disease) present in a patient. Lack of such a method has deterred the development of satisfactory treatment for the disease.

Ethopropazine was given to 147 patients with Parkinson's disease, which is a progressive nervous disease of later life. It also is characterized by a mask-like expression, weakness, a slowing of voluntary movements due to muscle rigidity, and a peculiar gait and posture.

The researchers said that ethopropazine in the proper dosage is a highly potent but safe remedy for the control of tremor and rigidity. Against the more severe types of tremor, ethopropazine was more effective than any other drug in current use, they said.

However, its effectiveness is limited in neurotic and emotionally unstable patients.

Improvement in tremor and rigidity was noted in 66 patients given the drug. It helped control major tremor in 29 of 42 patients and minor tremor in 36 of 67 patients with that symptom. Uncontrolled major tremor so affects the nervous system that patients do not have "a moment of relaxation or peace of mind during the waking hours," they said.

Ethopropazine proved valuable in 11 of 17 patients with insomnia. Pronounced improvement in muscular rigidity was achieved in 38 of 92 patients, and the drug helped gait, posture, and speech in 26 of 41 patients.

No serious side effects were observed, with 49 patients entirely free of them. Over half of the patients reported reactions which they called "drowsiness," "fogginess," "dizziness," "inability to think" or "lassitude." Also mentioned were blurring of vision, numbness of arms and feet, and dryness of mouth.

Thirteen patients were tested with the various electronic apparatuses during ethopropazine treatment and while taking placebos, preparations given in place of real medicine.

The measurements showed that ethopropazine caused a 20 to 70 per cent reduction in tremor in 9

(Continued on Page 76)

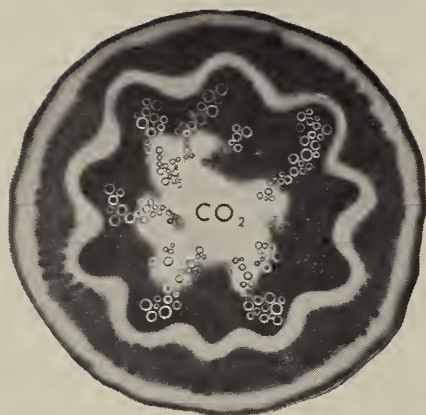


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Thiamine Mononitrate (B ₁)	2.5 mg.	Calcium Pantothenate	5 mg.
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Parkinson's Disease Therapy Outlined

(Continued from Page 71)

of the 13 patients. Improvement in rigidity was noted in about half of the patients.

The report on the ethopropazine treatment was made by Lewis J. Doshay, M.D., Kate Constable, M.D., and Frederic J. Agate, Jr., Ph.D., of the Neurological Institute of the Presbyterian Hospital and the departments of neurology and anatomy, College of Physicians and Surgeons, Columbia University, New York. F. Kingsbury Curtis, B.A., assisted Drs. Agate and Doshay in preparing the paper on measurements.

Antibiotics Double as Deodorants

Antibiotics have been used for lots of things and now physicians are using them as deodorants. This really isn't as strange as it seems.

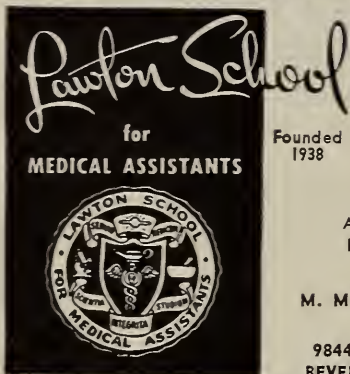
Researchers have found that it is not the perspiration which causes odor, but the action of bacteria on the perspiration. Antibiotics kill the bacteria.

Two Philadelphia physicians studied 10 men who normally did not use deodorants or antiperspirants and found that repeated application of antibiotics completely stopped underarm perspiration odor for as long as 18 hours after the last application.

Neomycin-based creams proved to be most effective.

(Continued on Page 79)

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Antibiotics Double as Deodorants

(Continued from Page 76)

tive in stopping the odor, they stated in a recent issue of the *Journal of the American Medical Association*.

Antibiotics may be the solution for "those few" persons who cannot tolerate the standard aluminum salt deodorants, which usually are "highly effective," they said.

A cream containing neomycin sulfate was used once by 25 men. No further washing or application was permitted. Nineteen of the men were without any odor on the first day, seven the second, and four the fourth.

In another part of the study, a cream containing the antibiotic, chloramphenicol, prevented odor in 18 of the 25 men the first day, six the second day, and four the fourth.

The study, which was supported by a contract from the Army, was made by Walter B. Shelley, M.D., Ph.D., and Milton M. Cahn, M.D., of the department of dermatology, University of Pennsylvania School of Medicine.

HOTEL ACCOMMODATIONS
RESERVATION FORM, PAGE 92,
ADVERTISING SECTION

"Castile" Changes Meaning Over the Years

Castile soap, once the aristocrat of soap, isn't what it used to be, according to an article in a recent issue of *Today's Health*, published by the American Medical Association.

Once "castile" meant a soap in which the fat content was 100 per cent olive oil. Now it may mean just about any bland white soap.

Mrs. Veronica L. Conley, secretary of the American Medical Association's committee on cosmetics, said, "At the present time, there are no standards for the composition of castile soap, the method by which it is made or the color or any other characteristic of the finished product."

Originally olive oil castile soap served a useful and important purpose, but with the development of improved soap-making processes, its usefulness has been lost and its name "distorted," she said.

Castile soap was developed in the eighth century in the Spanish province of Castile, where there was an abundant supply of olive oil. For several hundred years the demand for soap was "astonishingly low," with castile soap being used as frequently for cosmetics and salves as for washing.

By the 19th century the demand for soap was greatly increased and its manufacture was largely a household task. With unskilled hands and crude methods, many of these soaps were harsh and irri-

(Continued on Page 84)

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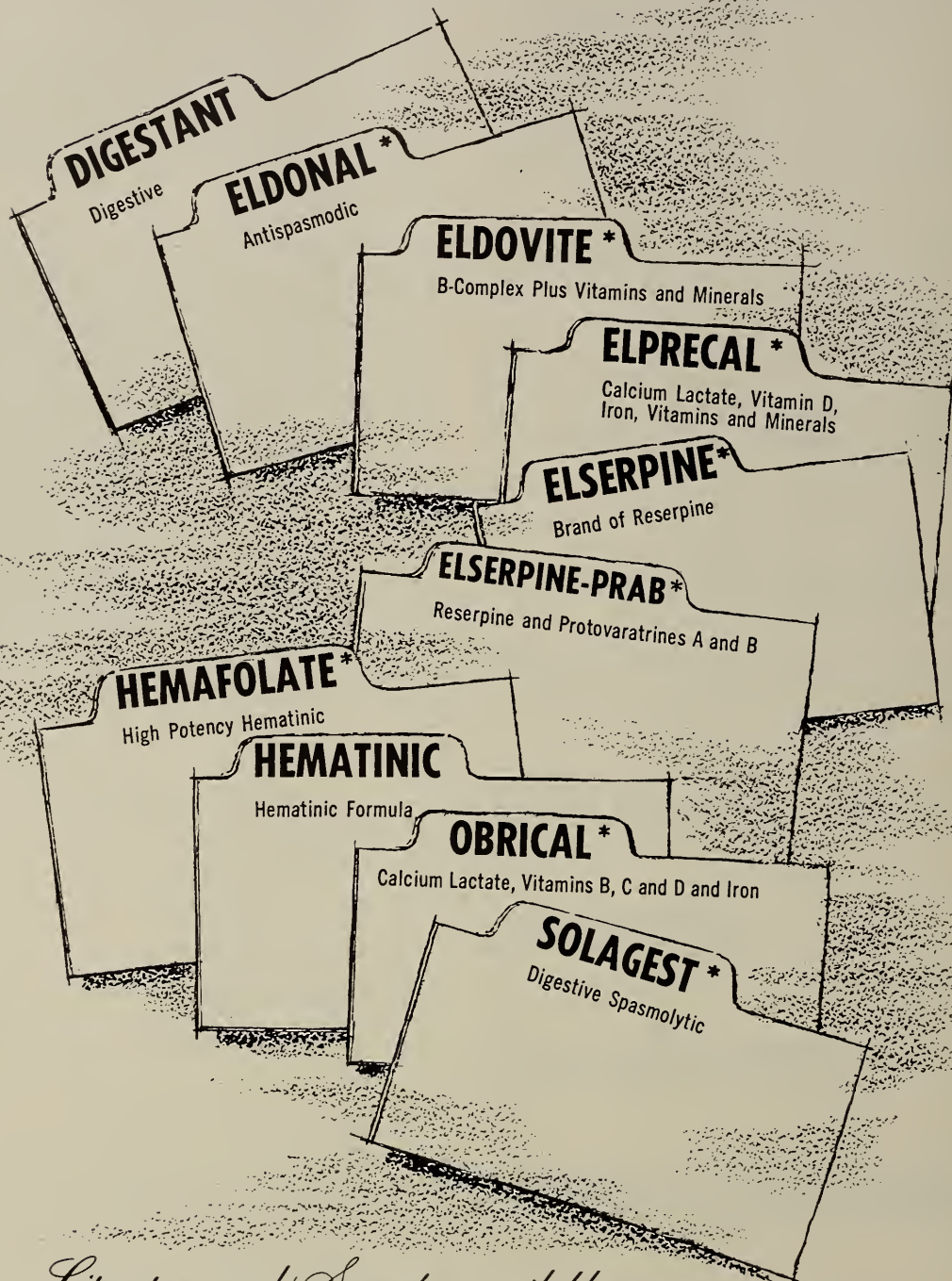
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Average Dosage: 1 Effervescent Packet; 1 tablespoonful Emulsion; or 5 Tablets three times daily at mealtimes.

Supplied: Effervescent Packets (new) — 24's; Emulsion 16 fl. oz.; Tablets — 200's.

References: 1. Dixon, H. H., and others: *West. J. Surg.* 62:338 (June) 1954. • 2. Jones, C. H.: (in press).
• 3. Watkins, A. L.: *New England J. Med.* 248:621 (April 9) 1953. • 4. Aldes, J. H.: *Bull. Biol. Sciences Foundation* 1:4 (April) 1954.

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"Castile" Changes Meaning Over the Years

(Continued from Page 79)

tated the skin. By comparison castile soap had a much higher standard of quality. But as new processes were developed and soap could be made in larger quantities, more economically, and milder, castile soap began to lose its importance.

However, the name castile, which implies purity and mildness, had far too much sales value to be permitted to fall into disuse and manufacturers began selling soap which contained little or no olive oil under the name castile, she said. This precipitated a legal battle.

There were, and still are, three schools of thought:

(1) That castile soap should continue to mean what it had since the eighth century—a soap containing only olive oil; (2) That it should contain olive oil as its main ingredient, but other oils could be included; (3) That any bland white soap is a castile soap.

"After years in the courts, the term castile on a soap wrapper ended up just about meaningless," Mrs. Conley said. "... the continued use of this meaningless term adds to the confusion of the consumer concerning cleaning agents in general," she said.

She pointed out that many manufacturers now add a note to the wrapper if olive oil is included in the soap.

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THE HIGH INCIDENCE of recurring cases following successful treatment is outstanding in vaginal trichomoniasis. "Reinfection is annoyingly frequent."¹ Donald observed that in 219 cases "... there was a history of previous attacks in 73 (33%)."²

Trichomonads in husbands—Draper says: "The presence of trichomonads in the male genitourinary tract should always be suspected in the husband of a woman who is repeatedly reinfected."³ Bernstine and Rakoff,⁴ and Lanceley and McEntegart,⁵ make similar statements. Drummond⁶ reported 80 per cent of husbands of infected wives harbored trichomonads. Karnaky found the parasite in the urethra and prostate or under the prepuce of 38 among 150 husbands with infected wives.⁷

Carrier cases—Usually the husband re-infects the wife unknowingly. Males harboring trichomonads may be free from symptoms.^{5,6,7-10} Even chronic male infections may produce symptoms so mild, "... no pain or discomfort,"⁹ that they are not detected until relapses occur in the successfully treated wife.^{3,4}

Protection for wives—To prevent re-infection in the wife, Karnaky advises "... the husband should wear a condom at coitus for four to nine months, during which time these trichomonads will usually die out of their own accord."¹¹ Draper,³ Bernstine and Rakoff,⁴ and Davis¹² also advise use of the condom to protect the wife of the infected husband.

When treating the wife, explain the role of the husband in trichomoniasis and his part in eliminating her infection. To save your time and make explanation easier, we have prepared a booklet for your patients, "HOW THE HUSBAND CAN HELP." Copies available upon request.

According to the preferences and problems of your patient, prescribe Schmid condoms by name. If there is anxiety that the condom might dull sensation, prescribe XXXX (FOUREX)[®]

skins. Made from the cecum of the lamb, they feel like the patient's own skin, are pre-moistened and do not retard sensory effect. If cost is a consideration, prescribe RAMSES[®] prophylactics—transparent, tissue-thin, yet very strong, of natural gum rubber.

Your prescription of Schmid condoms assures products of finest quality, avoids any embarrassment, and wins appreciation for your thoughtfulness. Prescribe Schmid protection for as long as four to nine months after the wife's infection has cleared. The protection Schmid condoms afford is the very foundation of re-infection control.

Treatment for vaginal trichomoniasis—Select a trichomonacide that you are sure can eliminate trichomonads from the vaginal wall. Better than 90 per cent apparent cures have been obtained with VAGISEC[®] liquid using the Davis technique.^{†12} VAGISEC liquid (originally "Carlenda-cide") actually explodes trichomonads within 15 seconds after douche contact.¹³ Also prescribe VAGISEC jelly for home therapy.

References: 1. Upton, J. R.: West. J. Surg. 60:222 (May) 1952. 2. Donald, I.: Brit. M. J. 2:1223 (Dec. 6) 1952. 3. Draper, J. W.: Internat. Rec. Med. 168:563 (Sept.) 1955. 4. Bernstine, J. B., and Rakoff, A. E.: Vaginal Infections, Infestations and Discharges, New York, The Blakiston Co., 1953. 5. Lanceley, F., and McEntegart, M. G.: Lancet 1:668 (Apr. 14) 1953. 6. Drummond, A. C.: Am. J. Surg. 31:98 (Jan.) 1936. 7. Karnaky, K. J.: Urol. & Cutan. Rev. 48:812 (Nov.) 1938. 8. Freed, C. F.: South African M. J. 22:223 (Mar. 27) 1948. 9. Sorel, C.: Mod. Med. 21:166 (Apr. 1) 1953. 10. Lanceley, F.: Brit. J. Ven. Dis. 29:213 (Dec.) 1953. 11. Karnaky, K. J.: J.A.M.A. 155:876 (June 26) 1954. 12. Davis, C. H.: West. J. Surg. 63:53 (Feb.) 1955. 13. Davis, C. H.: J.A.M.A. 157:126 (Jan. 8) 1955.

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Parent-Child Conflicts Cause Breath-Holding

Frequent severe spells of breath-holding by a small child are a sign of "profound insecurity" often resulting from conflict with his parents, two pediatricians said recently.

Drs. Alanson Hinman, Winston-Salem, N. C., and Lloyd B. Dickey, San Francisco, said in a recent issue of the *American Journal of Diseases of Children*, published by the American Medical Association, that breath-holding is an early form of temper tantrum—a primitive expression of anger or frustration.

A child may become frustrated because he is unable to cope with the world or because he feels insecure with his parents. In his helplessness, having no means of adequate expression, he reacts with rage "so overwhelming" that he loses control over himself and goes into a spell, they said.

Treatment must be directed toward a solution of the family conflict and helping the parents understand the emotional basis of the spells, the physicians said. The older methods—plunging the child into cold water or ignoring him during a spell or pointing out to him that similar behavior will be met with "harsh, if not painful, measures"—certainly should be avoided, they said.

The little child's only way of protesting against

a frustrating world is by crying and throwing himself around. Anything approaching the same kind of behavior on the part of adults will aggravate the situation, they said.

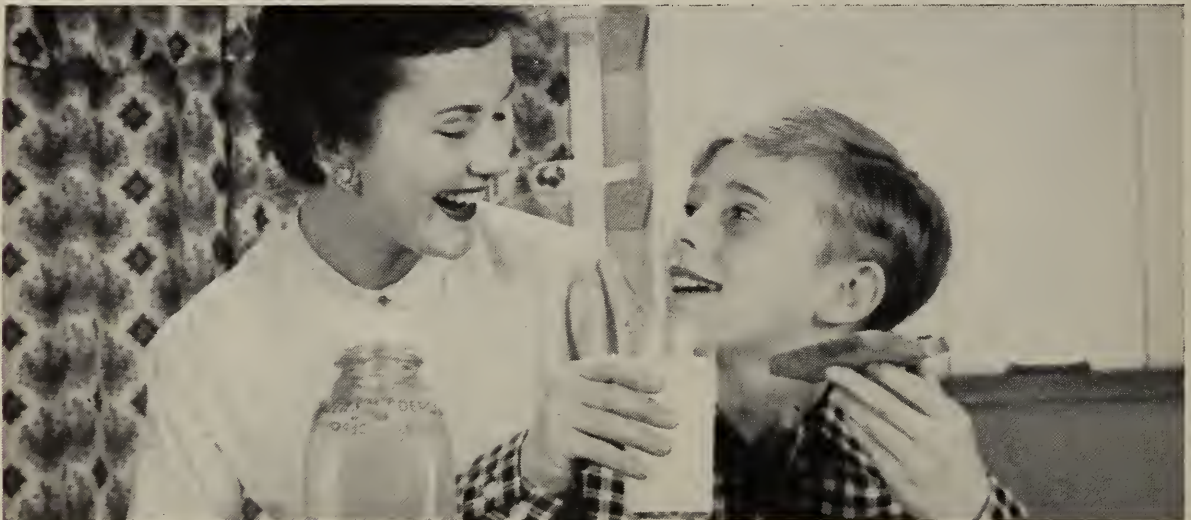
"Every effort should be directed toward removing the sources of conflict, such as coercion in eating, overly strict or too early bowel and bladder training, pressure in the matter of naps and bedtime, and other premature and excessive demands on the child," they said.

The parents should be reassured that the child can receive no physical or mental damage from the spells themselves. They should be helped to understand the difference between discipline and punishment and to establish a "tolerant and consistent disciplinary regimen," the authors said. In some cases the parents may need help in adjusting their own emotional problems.

Spells occur most frequently in the last half of the first year and during the second year of life. They usually are precipitated by injury or frustration and the resulting anger, the physicians said.

The sequence of events in a spell is: Crying, a long-sustained expiratory "cry" without succeeding inhalation of air, a slight blueness or paleness after the previous flushing of the face, stiffening of the limbs, loss of consciousness, relaxation, inhalation,

(Continued on Page 108)



To build giant-size appetites, prescribe...

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Supplied as REDISOL *Tablets*: 25, 50, 100, 250 mcg.; *Elixir*: 5 mcg. per 5 cc.; *Injectable*: 30, 100, 1000 mcg. per cc.



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(Brand of Phenylazo-diamino-pyridine HCl)

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PYRIDIUM is the registered trade-mark of Nepera Chemical Co., Inc., for its brand of phenylazo-diamino-pyridine HCl. Sharp & Dohme, Division of Merck & Co., Inc., sole distributor in the United States.

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Use of New Synthetic Hormone

A preliminary report on the use of a new synthetic hormone to make up for hormone gland activity lost through disease or surgery was made recently by two Ohio physicians.

The hormone, fludrocortisone acetate, appears to be 15 to 20 times as effective as hydrocortisone, another synthetic now used for such conditions.

The greatest usefulness of fludrocortisone probably will be in adrenal insufficiency and in cases of surgical removal of the glands in cancer or other serious illnesses, they said.

The physicians, who made their report in a recent issue of the *Journal of the American Medical Association*, gave the hormone to patients with a variety of disorders, including a serious nervous condition characterized by loss of appetite, an eye disease, rheumatoid arthritis, and adrenal cortical hypofunction.

The hormone is similar to cortisone and hydrocortisone in its ability to inhibit the pituitary stimulation of the adrenal gland; produce loss of nitrogen, calcium, and phosphorus; inhibit inflammation, and produce a sense of well being.

(Continued on Page 108)

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Occupational facilities consist of special occupational therapy room, tennis court, billiards, badminton court, table tennis and completely enclosed, heated, full-size swimming pool.

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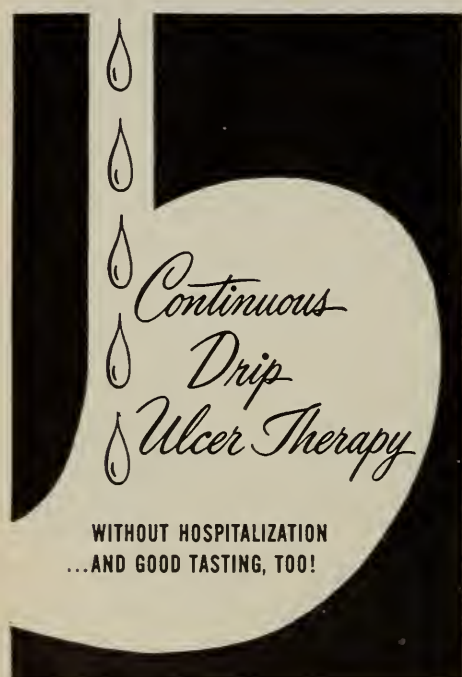
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Staff Physician



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Ulcer Therapy

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...AND GOOD TASTING, TOO!

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A recent clinical study* of 46 ambulatory nonhospital patients treated with Nulacin† and followed up to 15 months describes the value of ambulatory continuous drip therapy by this method. Total relief of symptoms was afforded to 44 of 46 patients with duodenal ulcer, gastric ulcer and hypertrophic gastritis.

The delicately flavored tablets dissolve slowly in the mouth (not to be chewed or swallowed). They are not noticeable and do not interfere with speech.

Nulacin tablets are supplied in tubes of 25 at all pharmacies. Physicians are invited to send for reprints and clinical sample.

*Steigmann, F., and Goldberg, E.: Ambulatory Continuous Drip Method in the Treatment of Peptic Ulcer, *Am. J. Digest. Dis.* 22:67 (Mar.) 1955.

†Mg trisilicate 3.5 gr.; Ca carbonate 2.0 gr.; Mg oxide 2.0 gr.; Mg carbonate 0.5 gr.

TWO NEW BOYLE FORMULAS FOR THE COMMON COLD

CITRA COLD CAPSULES

CITRA COLD CAPSULES contain Hesperidin and Vitamin C to aid in restoring and maintaining capillary integrity, an important weapon in the control of colds. (See bibliography below)

CITRA COLD CAPSULES also contain phenylephrine hydrochloride to assist in clearing the nasal and bronchial tracts; triple anti-histamine in divided dosages to reduce undesirable side effects without reducing anti-histamine effectiveness; and a "so-called" APC group for powerful analgesic effect.

Each Citra capsule contains:

<i>Hesperidin, Purified (Citrus Bioflavonoid)</i>	50.0 mg.	<i>Methapyrilene Hydrochloride</i>	8.33 mg.
<i>Vitamin C</i>	50.0 mg.	<i>Pyrilamine Maleate</i>	8.33 mg.
<i>Phenylephrine Hydrochloride</i>	5.0 mg.	<i>Salicylamide</i>	200.0 mg.
<i>Prophenpyridamine Maleate</i>	6.25 mg.	<i>Acetophenetidin</i>	120.0 mg.
		<i>Caffeine</i>	30.0 mg.

CITRA COUGH SYRUP

For antitussive and analgesic effect, this formula contains non-constipating dihydrocodeinone bitartrate; soluble Hesperidin methyl chalcone in combination with vitamin C to maintain capillary integrity and resist the spread of infection; phenylephrine hydrochloride as a soothing decongestant; multiple anti-histamines for effective anti-histamine action with fewer side effects; and potassium citrate, a sodium free salt for sedative expectorant action.

Each 5 c.c. (1 teaspoonful) contains:

<i>Dihydrocodeinone Bitartrate</i>	1.66 mg.	<i>Vitamin C</i>	30.0 mg.
<i>Hesperidin Methyl Chalcone (Citrus Bioflavonoid)</i>	8.33 mg.	<i>Prophenpyridamine Maleate</i>	2.5 mg.
<i>Phenylephrine Hydrochloride</i>	2.5 mg.	<i>Pyrilamine Maleate</i>	3.33 mg.
		<i>Potassium Citrate</i>	150.0 mg.

In a flavored syrup base. Alcohol 2% — Exempt Narcotic.

Both Citra formulas available at all prescription pharmacies. Citra Cold Capsules packed in bottles of 100 and 1000. Citra Cough Syrup in pints and gallons.

BIBLIOGRAPHY:

- Steinberg, Harry; Use of Double Antihistamine in the treatment of Allergies, *Annals of Allergy*; 13;183, 1955.
- Eddy, N. B. and Reid, N. G.; *Journal Pharmacology and Experimental Therapeutics*, 52;468, 1934.
- Sokoloff, B; The Capillary Syndrome in Viral Infections, Treatment with Citrus Flavonoids. *Am J. Digestive Diseases*, 22:7, Jan. 1955.
- Scarborough, H.; *Vitamin P, Vitamins and Hormones*, 7:1, 1949.
- Boines, George J.; *Annals of New York Academy of Sciences*, 61:3721, 1955.
- Selmsan, G. J., and S. Horoschak, 1950. The treatment of Capillary fragility with Hesperidin and Vitamin C. *Am. J. Digestive Diseases*, 17:92.



BOYLE & COMPANY Bell Gardens, California

CLASSIFIED ADVERTISEMENTS

(Continued from Page 96)

RESIDENTS WANTED (Continued)

MEDICAL RESIDENCY: Openings July 1, 1956, in 1st, 2nd, and 3rd year program of fully approved three-year Residency in Internal Medicine; 800-bed University-affiliated county general hospital. Apply L. A. West, M.D., Medical Director, Los Angeles County Harbor General Hospital, 1124 West Carson St., Torrance, California.

RESIDENT IN PEDIATRICS—Available July 1, 1955, at approved 700-bed General Hospital; 3-year approval for Pediatrics. Salary \$235 per month. Apply Superintendent, San Joaquin General Hospital, P. O. Box 1890, Stockton, California

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GENERAL PRACTICE: South Pasadena, California. Established over 20 years. High income locale with excellent schools. Six miles from Los Angeles. Completely equipped, including x-ray, diathermy. Rented office adjacent to large home—both available, with or without lease, at \$150.00 per month, making overhead low. Must leave soon to specialize. Box 91,825, California Medicine.

PRACTICE WANTED

TWO GENERAL PRACTITIONERS desire to lease or buy established general practice in a smaller community in California. Growth potential and/or some industry in area desirable. Reply Box 91,885, California Medicine.

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FOR RENT—LOCATION FOR SPECIALIST in growing community in centrally located Medical Building in suburban metropolitan area of Oakland, California. Excellent opportunity for dermatologist, E.N.T., internal specialist or bone specialist. Reasonable rent. Now available. San Leandro Medical Building Company, 1556 Leonard Drive, San Leandro, California.

FOR LEASE. Professional suites located on 800 block North Broadway, Santa Ana, California. Will alter to suit individual needs. Box 91,655, California Medicine.

REAL ESTATE FOR SALE

FOR SALE—FULLY EQUIPPED OFFICE for general practice, located in the fastest growing area of Orange County, California. Very low rent. Reason—sudden illness. Box 91,820, California Medicine.

APPARATUS, ET CETERA, FOR SALE

ALLISON ALL PURPOSE CHAIR TABLE. Gyn, Rectal G. U. and Operating hydraulic, sell \$175.00, like new; also metal examining table, Gyn, and G. P., sell \$25.00. Cameron Canterodyne cost \$325.00, sell \$150.00. Cameron diagnostic set, sell \$35.00. One Tycos pocket B. P., sell \$15.00. 2 Wall Merc. Baumometers, sell \$12.50 each. 1 new Microtherm, sell \$200.00. J. H. Renner, M.D., 4053 Branciforte Drive, Santa Cruz, California.

OXYGEN THERAPY EQUIPMENT. Bennett Pressure Breathing Therapy unit, Model TV-2P, Flow Sensitive, complete with nebulizer, Bennett Mask, control gauges, et cetera, late model, like new, cost \$350.00, price \$150.00. Oxygen pressure regulator and flow control with two gauges giving cylinder pressure and volume and flow in liters per minute, National Oxygen Therapy Model No. 754, with National Humidifier No. H-16, latest model, like new. Cost \$69.94, price \$35.00. Mrs. P. B. Carter, 357 Waverley Street, Menlo Park, California. Telephone: DAvenport 5-6012.

"Human Relations" Program Suggested for Industry

An industrial medical director has suggested, after a study of 28,000 workers, that the number of absences because of illness can be reduced by a "grass roots" approach to the problem.

Dr. Leo Wade, of the Esso Standard Oil Company, New York, proposed a "human relations" program in industries "to make sure that each worker is properly assigned so that he can do a 100 per cent job without harm to himself or his associates." The program would be run by the medical director, personnel officer, and department supervisors.

A certain amount of sickness absenteeism is inevitable, but excessive absenteeism may be a sign that a worker is not properly assigned or is incapable of adjustment in industry, he said.

Dr. Wade found in his study, reported in a recent issue of *Archives of Industrial Health*, published by the American Medical Association, the following:

Women employees were absent more than twice as often as men—2,772.3 absences per 1,000 women per year compared with 1,054.8 absences per 1,000 men per year. The average number of days lost per absence among women was less than half that for men—3.6 and 8.8 days.

The average number of absences per year tended to decrease slightly as employees grew older; however, the average duration of absences increased "strikingly" for men.

One-day absences made up a smaller portion of the total absences with each successive decade, while long term absences increased. This may result in part from a change in the disease pattern with increasing age.

Respiratory disease accounted for almost half of the total absences, while gastrointestinal disease was responsible for slightly more than one-fourth. Cardiovascular disease was responsible for less than 2 per cent of the total.

With advancing age, the frequent mild upper respiratory or gastrointestinal upsets were replaced by infrequent serious life-threatening diseases.

The major part of the total number of absences was due to a relatively small number of employees—often the same employees year after year.

The weather, often blamed for increased absenteeism, apparently played no part in it. The only correlation found was that there were fewer absences on higher temperature days.

Shift work did not increase absenteeism.

Morale factors, such as a supervisor's personality, type of work, and home situation, were of "extreme importance" in influencing the rate of absences. One and two-day absences frequently were related to weekends or holidays. A study of one refinery in 1948 showed that 54.8 per cent of such absences immediately preceded or followed otherwise legitimate time off.

Gentle

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for Noludar

Mild, yet positive in
action, Noludar 'Roche'
is especially suited
for the tense patient
who needs to relax
and remain clear-headed
—or for the insomniac
who wants a refreshing
night's sleep without
hangover. Not a
barbiturate, not habit-
forming. Tablets,
50 and 200 mg; elixir,
50 mg per teasp.

Noludar® brand of methyprylon
(3,3-diethyl-5-methyl-
2,4-piperidinedione)



ROCHE

Original Research in
Medicine and Chemistry

Parent-Child Conflicts Cause Breath-Holding

(Continued from Page 86)

and recovery. Some children are weak or exhausted after a spell, but most seem entirely normal after breathing is reestablished, they said.

Breath-holding spells are sometimes confused with epileptic seizures and other lesser-known disorders. Epileptic attacks and breath-holding spells can be distinguished because of the difference in "cries." Convulsions in breath-holding, "which are rare, anyway," are mild compared to the "dramatic" ones of epilepsy, and the epileptic seizures usually do not follow some specific event such as a fall or frustration. They said that if any "real doubt" exists, a thorough medical study should be undertaken.

The physicians outlined 11 cases among children ranging in age from one year to five years, seven months. There was only one over two and a half, and the average age, excluding the oldest, was approximately one year, nine months.

The age at onset of the spells ranged from three to 24 months, the average being a little over 10 months. The frequency of spells ranged from eight spells in a year to as many as 10 or 15 a day.

In several cases, strained relationships within the family were obvious. In four cases, there were conflicts about feeding, and in three, about toilet train-

ing. In three families there was frustration from relatives living in the family, and in two there was marital friction. In at least two, the parents seemed to be overly demanding and strict. There was a family history of breath-holding spells in four.

In six of the children the spells ceased in a few months. One was much better two years later, and one, according to the family doctor, became an epileptic. There was no follow-up on three of the children.

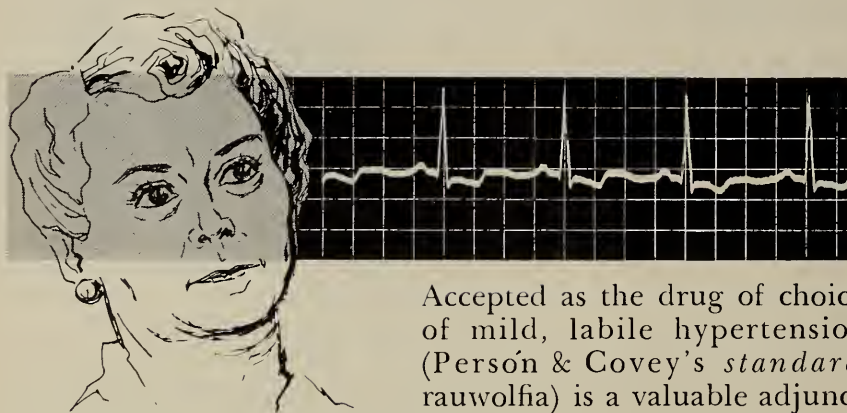
Use of New Synthetic Hormone

(Continued from Page 100)

It also resembles desoxycorticosterone, another synthetic hormone, in its effect on salt, water, and potassium balance. However, its use may be limited in conditions such as rheumatoid arthritis in which it causes too much salt and water retention, they said.

The report was made by Drs. George J. Hamwi and Robert F. Goldberg, from the division of endocrinology and metabolism, department of medicine, Ohio State University, Columbus, Ohio.

The study was supported by grants from the Comly-Coleman Fund, the Institute of Nutrition of Ohio State University, and Merck & Company, Inc., Rahway, N. J.



...the case for HYPERLOID

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Management of Grade 3 and 4 Hypertension

According to Burnett and Evans¹ priming the hypertensive patient with rauwolfia before starting ganglionic blocking agents permits the use of smaller doses of the more potent, more dangerous medicaments, such as pentolinium, hydralazine, hexamethonium, and veratrum; minimizes side reactions, and produces smoother blood pressure curves. Finnerty and Sites² report that priming with rauwolfia makes the ganglionic drugs more effective, less toxic, and easier to administer.

HYPERLOID is the only powdered whole root rauwolfia product standardized by chemical and biological assay to contain exactly 2 mg. per tablet of total alkaloids. The side reactions of the more expensive alkaloidal fractions are identical with those of the whole root.

Persón & Covey

Glendale 5, California

¹ The New England Journal of Medicine 253:395, September, 1955.

² American Journal of Medical Science 229:379, April, 1955.

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confirms and defines superiority over
other Rauwolfia preparations in the
treatment of HYPERTENSION

- Rauwiloid represents the balanced, mutually potentiated actions¹ of several Rauwolfia alkaloids, of which reserpine and the equally antihypertensive rescinnamine have been isolated.
- Hence, reserpine is not the total active antihypertensive principle of the rauwolfia plant.
- Rauwiloid is freed of the undesirable alkaloids of the whole rauwolfia root. Recent investigations confirm the desirability of Rauwiloid (because of the balanced action of its contained alkaloids) over single alkaloidal preparations; "...mental depression...was...less frequent with alseroxylon..."²

The dose-response curve of Rauwiloid is flat,
and its dosage is uncomplicated and easy to
prescribe...merely two 2mg. tablets at bedtime.

1. Cronheim, G., and Toekes, I.M.; Comparison of Sedative Properties of Single Alkaloids of Rauwolfia and Their Mixtures, Meet. Am. Soc. Pharmacol. & Exper. Therap., Iowa City, Iowa, Sept. 5, 1955.

2. Moyer, J.H.; Dennis, E., and Ford, R.: Drug Therapy (Rauwolfia) of Hypertension II. A Comparative Study of Different Extracts of Rauwolfia When Each Is Used Alone (Orally) for Therapy of Ambulatory Patients with Hypertension, A.M.A. Arch. Int. Med. 96:530 (Oct.) 1955.

Riker

Rauwiloid is the original alseroxylon fraction of India-grown Rauwolfia serpentina, Benth., a Riker research development.

Cataract Disappears Spontaneously

The spontaneous disappearance of a cataract in the eye 29 years after it developed has been reported by a New York ophthalmologist.

Dr. Norman Corin, Jamaica, N. Y., said that he knows of only five other cases (two in adults) in which a cataractous lens, one which has become opaque, was spontaneously absorbed.

A woman had been able to perceive only light with her left eye for 29 years after an eye inflammation. The right eye had remained normal.

In March, 1955, the left eye became red, acutely painful, and abnormally sensitive to light. Examination showed that the lens and its capsule were completely gone, absorbed by the surrounding substance.

She was given glasses which corrected the sight in that eye to the normal 20/20 vision. The eye has remained symptom-free, he said.

Dr. Corin made his report in a recent issue of the *Archives of Ophthalmology*, published by the American Medical Association.

One Injection of Penicillin May Prevent Infection

A study conducted among Navy recruits has shown that one injection of penicillin may prevent the development of streptococci infections.

A single injection of benzathine penicillin G was given to each of 2,913 recruits at the Bainbridge, Md., training center. These men had been found to have beta-hemolytic streptococci in their throats.

In 624 of these men the streptococci were classified as group A, which cause sore throats and rheumatic fever. The one injection of penicillin eradicated the bacteria in the throats of 597 of these men and prevented reinfection for at least one month, the report in a recent issue of the *Journal of the American Medical Association* said.

Of those 597 men, 576 had no known recurrence of the bacteria for the remainder of their recruit training.

The authors said the results indicated that benzathine penicillin G may warrant further investigation as "a safe, effective, long-term single-injection" preventive agent in the control of streptococci infections, especially in large groups.

Unfavorable reactions, which generally consisted of rash and hives, occurred in only 25 of the 2,913 men. One case was considered serious. There was no case of rheumatic fever in any recruit who had received an injection of the antibiotic.

Making the report were Lt. Thomas J. Brooks, Jr., (MC), U.S.N.R., now professor and chairman of the department of preventive medicine at the University of Mississippi School of Medicine, and Capt. Tilden I. Moe, (MC), U.S.N., now commanding officer of the U. S. Naval Hospital, Guantanamo Bay, Cuba.

Prednisone Used For Allergies, Anemia

Two Chicago physicians recently reported further evidence that prednisone is valuable in treating allergic diseases, and two New York physicians said in a preliminary report that it may be useful for anemia.

The reports on the synthetic hormone, which is related to cortisone, appeared in a recent issue of the *Journal of the American Medical Association*.

Drs. Alan R. and Samuel M. Feinberg, of the allergy clinic and allergy research laboratory, Northwestern University Medical School, Chicago, compared the effectiveness of prednisone and cortisone in 80 patients with allergy diseases.

They found that prednisone was five times more potent than cortisone, meaning that smaller doses of prednisone are necessary to obtain and maintain the same results as cortisone. Prednisone's side effects were about the same as those of cortisone, except that generally they did not upset the body's salt and water balance.

Of 50 patients with perennial chronic asthma, 41

obtained complete or nearly complete relief with prednisone. Satisfactory results also were obtained in 10 patients with seasonal asthma due to pollen or mold allergy, and in 27 of 32 patients with asthma and seasonal allergic rhinitis.

Other types of allergy successfully treated were perennial allergic rhinitis, allergic eczema, serum sickness reaction from penicillin, and chronic hives.

Drs. Leon N. Sussman and Jack R. Dordick of the medical service and hematology laboratory of Beth Israel Hospital, New York, used the hormone for three cases of acquired hemolytic anemia, in which red blood cells are destroyed by some agent in the blood. The exact cause of the disease is unknown.

Treatment included the standard methods, cortisone, and prednisone. Prednisone in "relatively small" doses satisfactorily alleviated the anemia, without the appearance of any undesirable side effects, they said.

The effectiveness of the hormone in this small series makes its further study essential, they said.

*specific against
coccic infections*

Now, you can prescribe an antibiotic (*Filmtab* ERYTHROCIN) that provides *specific therapy* against staph-, strep- or pneumococci. Since these organisms cause most bacterial respiratory infections (and since they are the very organisms most sensitive to ERYTHROCIN) doesn't it make good sense to prescribe ERYTHROCIN when the infection is coccic?

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Erythrocin®
(Erythromycin, Abbott)
STEARATE

*with little risk of
serious side effects*

Since ERYTHROCIN is inactive against gram-negative organisms, it is less likely to alter intestinal flora—with an accompanying low incidence of side effects. Also, your patients seldom get the allergic reactions sometimes seen with penicillin. Or loss of accessory vitamins during ERYTHROCIN therapy. *Filmtab* ERYTHROCIN (100 and 250 mg.), bottles of 25 and 100. **Abbott**

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Erythrocin®
(Erythromycin, Abbott)
STEARATE

®Filmtab—Film sealed tablets; patent applied for.



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loss of income from accident and
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Medical All-American Team Listed

A unique All-American football team and its coach were listed in a recent issue of the *Journal of the American Medical Association*. It is composed of 25 former All-Americans who now are physicians.

The team was selected by *Spectrum*, a medical supplement in the *Journal*, sponsored by Pfizer Laboratories, Brooklyn, N. Y., a pharmaceutical company.

The coach is John W. Wilce, who coached at Ohio State University from 1913 to 1928. He is now an internist in Columbus, Ohio.

The team includes six ends, six tackles, four guards, two centers, and seven backs. Five of the members were selected to the National Football Hall of Fame. Within months of joining the group is William McColl, All-American end at Stanford University in 1950 and 1951, who is a fourth-year student at the University of Chicago School of Medicine.

"These physicians turned their athletic prowess to good advantage: 13 coached before, during, or after medical school, and five played professional football (two on the New York Giants), usually to help along with the costs of medical education. Several were outstanding all-around athletes—E. Leroy Mercer and Josiah C. McCracken were Olympic track stars," the article said.

"Not surprisingly, some of them have maintained an interest in football: One is a full-time coach and three are physicians to a team. But the prime interest of a physician is inevitably the practice of medicine, and they have fitted in almost everywhere, except that as a group they lean strongly toward orthopedics. Various medical schools have claimed eight of them as teachers, one being a vice-president and full professor; five are general practitioners, 13 are specialists.

"Of the two who are engaged in industrial medicine, one heads the medical department of one of the country's largest steel works. One runs a University health service, two others have worked in health services, one was a director of a university department of physical education, and two were medical missionaries. Four are now retired. As a group they perhaps resolve an old argument about the destiny of outstanding athletes—they have done well indeed," the article said.

Members of the team, their college, and the year in which they were All-Americans follows:

Guards—Clarence W. Spears, Dartmouth College, 1914-15, now in general practice at Ypsilanti, Mich.; Daniel J. Fortmann, Colgate University, 1935, now a surgeon in Hollywood, Calif.; Edward M. Molinsky, University of Tennessee, 1939-40, now in general practice in Memphis, Tenn.; Stephen E. Reid, Northwestern University, 1936, now a surgeon in Evanston, Ill.; Joseph Alexander, (also a center),

(Continued on Page 22)

benefits of prednisone and prednisolone plus positive antacid action to minimize gastric distress...

A reportedly higher incidence of gastric distress in patients receiving the newer steroids prednisone and prednisolone indicates the desirability of co-administering non-systemic antacids.¹

To help the physician cope with this problem of gastric distress which might otherwise become an obstacle to therapy with the newer steroids . . . Multiple Compressed Tablets 'Co-DELTRA' (Prednisone Buffered)

'Co-DELTRA' and 'Co-HYDELTRA'
are trade-marks of MERCK & Co., INC.

and 'Co-HYDELTRA' (Prednisolone Buffered) are now available.

'Co-DELTRA' and 'Co-HYDELTRA' are now available in bottles of 30 on your prescription. Each Multiple Compressed Tablet contains:

Prednisone or Prednisolone, 5 mg.; 300 mg. of dried aluminum hydroxide gel, U.S.P., and 50 mg. of magnesium trisilicate.

1. Bollet, A. J., Black, R., and Bunim, J. J.: *J.A.M.A.* 158: 459, June 11, 1955.

'Co-Hydeltra'

Prednisolone Buffered



Philadelphia 1, Pa.
DIVISION OF MERCK & Co., INC.

Medical All-American Team Listed

(Continued from Page 18)

Syracuse University, 1918-20, now practicing internal medicine in New York.

Tackles—George W. Hauser, University of Minnesota, 1916-17, now a dermatologist in Minneapolis; Iolas M. Huffman, Ohio State, 1920-21, now in general practice in Ravenna, Ohio; Otis F. Lamson, University of Pennsylvania, 1905, now a Seattle, Wash., surgeon; Charles B. Ceppi, Princeton University, 1933, now a general practitioner in Jamestown, R.I.; Franklin K. Gowdy, University of Chicago, 1924, now a Winnetka, Ill., internist.; James

C. Walker, Minnesota, 1910, now an orthopedic surgeon in Dayton, Ohio.

Quarterbacks—W. Barry Wood, Jr., Harvard University, 1931, now vice-president of Johns Hopkins University and Hospital; William C. Wurtenberg, Yale University, 1887, now retired at New Haven, Conn.

Fullback—E. Leroy Mercer, Pennsylvania, 1910-12, a former dean of the department of physical education at Pennsylvania, and now retired.

Halfbacks—Andrew J. Oberlander, Dartmouth, 1925, now medical director of an insurance company in Chicago; Josiah C. McCracken, Pennsylvania,

(Continued on Page 26)

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Psychiatrist Issues Hypnotism Warning

Hypnotism can be a useful tool in the hands of a qualified specialist, but it can be "downright dangerous" when used by an irresponsible person, a New York psychiatrist said recently.

Writing in a recent issue of *Today's Health*, published by the American Medical Association, Dr. James A. Brussel, Willard, N. Y., warned against the indiscriminate use of hypnotism by lay persons to "cure" symptoms—both physical and mental—and to develop delusions such as "mastery of the mind."

He said three principles regarding hypnotism to which medical science subscribes are: (1) Where hypnotism removes symptoms, an illness may be obscured and prolonged, since causes are not treated. (2) Where hypnotism treats emotional symptoms instead of causes, more serious personality defects may occur. (3) Where hypnotism evokes delusions, habits of thought as harmful as drug addiction may be formed.

Hypnotism can be useful, especially in psychotherapy, by relieving certain symptoms and manifestations. However, these very gains are exploited by untrained and irresponsible persons, Dr. Brussel said.

"By virtue of the sudden, immediate and seemingly successful results achieved through hypnosis,

the quack flourishes and creates damage that is at times appalling," he said.

Hypnotism by trained specialists in psychotherapy may be used to remove some psychological or physical condition which interferes with the beginning of satisfactory therapy. Its use, though, must be limited to certain neuroses, he said.

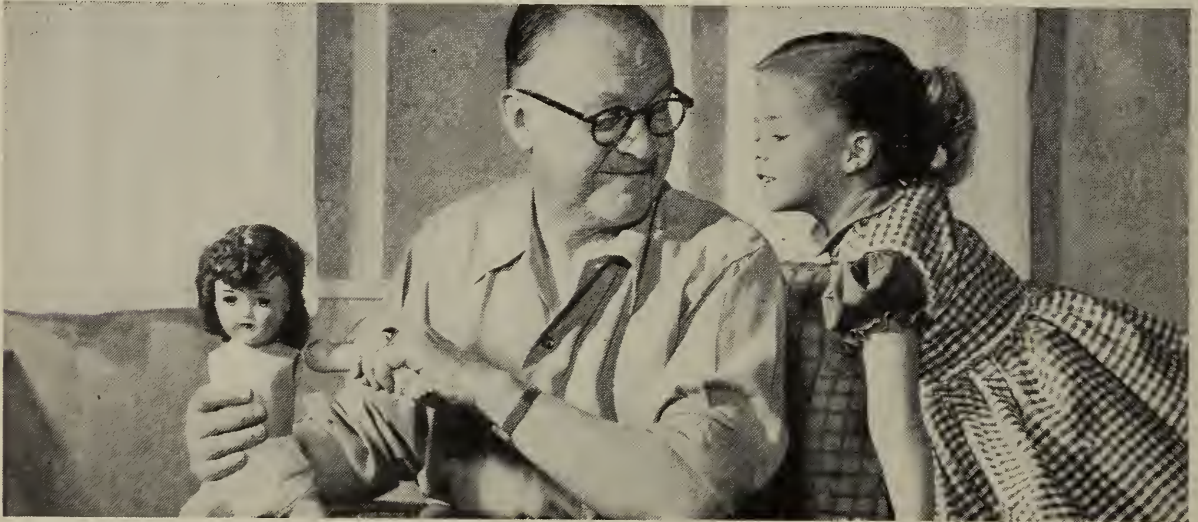
Hypnotism is not a cure in the strict sense of the word and its results are not always permanent. It can be used only on persons who are willing to cooperate and who have, at least, an unconscious desire to secure relief, he said.

Since there are not psychiatrists enough for all, quacks have enjoyed a "Roman holiday." In the process, the quack "can do irreparable harm by his ability to produce hypnotic effects which he doesn't understand and doesn't know how to use," Dr. Brussel said.

Only public awareness can halt the growing menace of hypnotic quacks, Dr. Brussel said. "As long as people are willing to gamble their health with untutored, inexperienced practitioners, the menace will continue to grow," he concluded.

Dr. Brussel, a certified psychiatrist, is a member of the American Psychiatric Association.

California Medical Association Annual Meeting, celebrating its 100th Anniversary, Ambassador Hotel, Los Angeles, April 29 to May 2.



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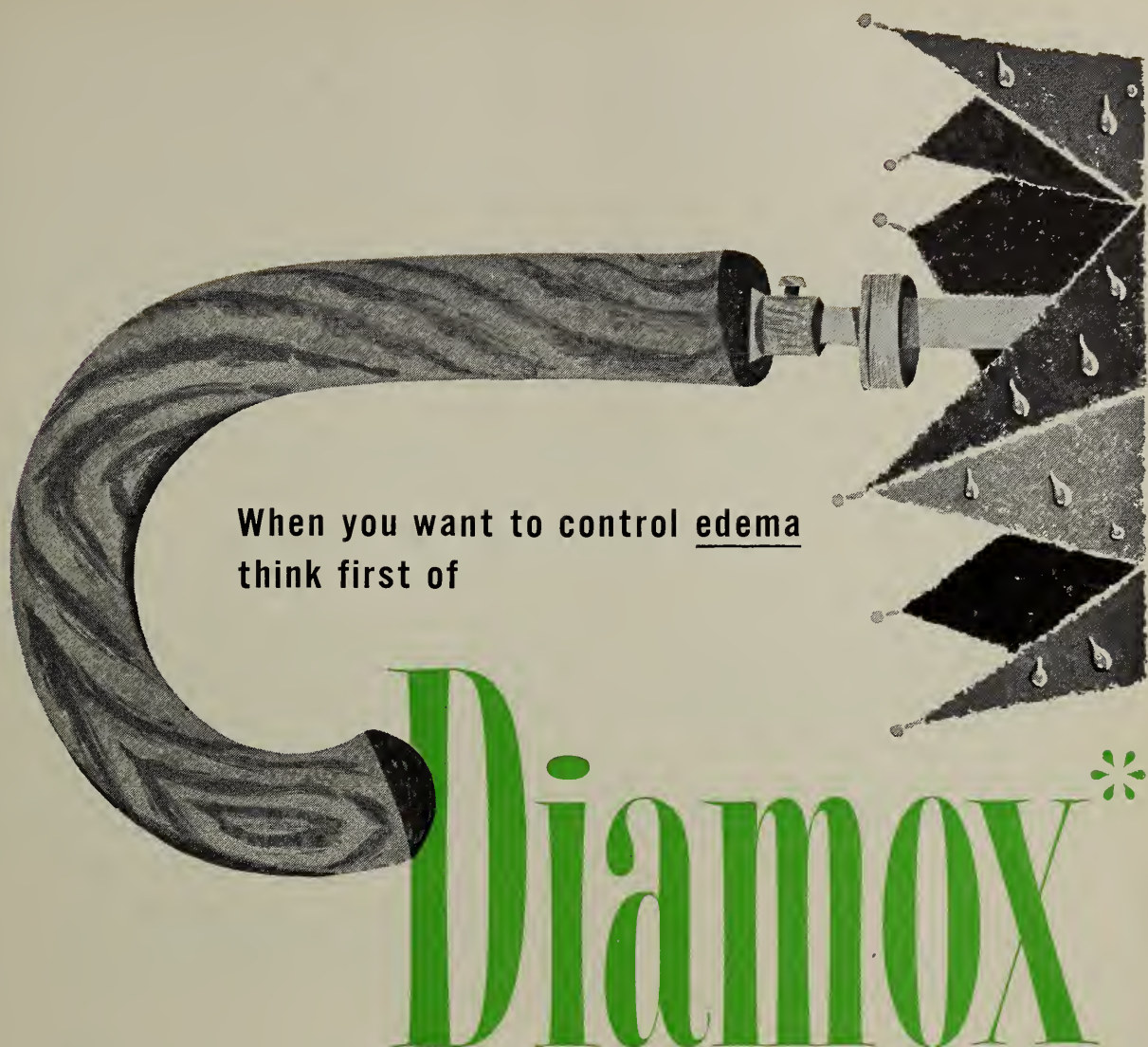
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Medical All-American Team Listed

(Continued from Page 22)

1899, who served for many years as a medical missionary in China; Phil E. White, University of Oklahoma, 1920, now practicing industrial and traumatic surgery in Oklahoma City; Marvin A. Stevens, Yale, 1923, now an orthopedist in New York.

Ends—Harold P. Muller, University of California, 1921-22, now a Berkeley, Calif., orthopedic surgeon; Joseph C. Donchess, University of Pittsburgh, 1929, now chief surgeon of the Gary Steel Works, Gary, Ind.; H. C. Carlson, Pittsburgh, 1917, now head of the Men's Student Health Service at Pitts-

burgh; Edward N. Anderson, University of Notre Dame, 1921, now head football coach at College of the Holy Cross, Worcester, Mass.; George C. Tully, Dartmouth, 1925, now practicing urology at Worcester; A. Harry Kallet, Syracuse, 1911, now in general practice in Syracuse.

Centers—William R. Cunningham, University of Michigan, 1898, now retired in Grove City, Pa., and Joseph Alexander.

All-American physicians who now are deceased include Charles M. Wharton, guard, 1895-96, John H. Outland, back, 1897-98, Robert G. Torrey, center, 1905, and Hunter Scarlett, end, 1908, all from the University of Pennsylvania.

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References: 1. Carlson, A. J., in Stieglitz, E. J.: *Geriatric Medicine*, ed. 3, Philadelphia, J. B. Lippincott Company, 1954, p. 71. • 2. Dixon, H. H.; Peterson, R. D.; Dickel, H. A.; Jones, C. H., and West, E. S.: *West J. Surg.* 60:327 (July) 1952.

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Four Groups Report on New Muscle Relaxant

Four preliminary reports on a new muscle relaxant, which in its experimental stage shows promise of bringing comfort in several diseases, appeared in a recent issue of the *Journal of the American Medical Association*.

The compound zoxazolamine (Flexin) has several advantages over older drugs used to relieve persistent muscle spasms, but further study is necessary to determine the extent of its usefulness, all the reports said.

The studies showed possible use of the drug for patients suffering spasticity, various rheumatic and arthritic diseases, and diseases of the brain and spinal cord, and for children with cerebral palsy.

Zoxazolamine's principal role seemed to be to aid in nursing care, to increase the comfort of the patient, and to facilitate the work of the physical therapist, according to Dr. William Amols, New York. It has a longer period of action, greater effectiveness when given orally, and causes fewer side effects than older relaxants, Dr. Amols said.

He gave the compound, in combination with chlorpromazine (Thorazine), a tranquilizing agent, to 28 patients with a variety of neurological disorders involving the voluntary muscles. The major benefit was relief from the discomfort and inconvenience of the spasms, but many patients said the drug caused weakness in their limbs, which impaired their ability to get around.

The drug was especially effective in relieving stiffness and aching from rheumatic diseases, Drs. Richard T. Smith, Kenneth M. Kron, William P. Peak, and Irvin F. Hermann, Philadelphia, said.

Excellent or good results were obtained in 85 of 100 patients in whom stiffness and soreness prevented the necessary program of exercise. Complete relief was obtained in some patients within 30 minutes after swallowing the pill, and partial relief in others within 60 minutes.

Patients with rheumatoid spondylitis, a form of arthritis affecting the vertebrae, received the best over-all relief from muscle spasm, with 15 of 16 patients benefiting.

The most common unfavorable side effects were associated with the gastrointestinal tract and equilibrium. Some patients overcame them and continued taking the drug, but 13 had to discontinue the drug because of the severity of the side effects. Chills and fever, burning and tearing of the eyes, and skin rash also were noted.

The long range effectiveness of the drug in improving muscular function in cerebral palsied children is not yet clear, although its results in 15 of 28 children were encouraging, Drs. Edwin H. Abrahamson and Henry W. Baird III, Philadelphia, said. It produced relaxation in 10 other children, but

(Continued on Page 38)



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Newborn Infant Develops Own Polio Immunity

Infants born while their mothers have acute polio may be infected without showing outward signs, two Maryland physicians stated.

In a recent issue of the *Journal of the American Medical Association*, they told of a newborn baby who acquired polio from his mother before or during birth, developed his own immunity to the disease, and never showed signs of infection.

As far as the doctors know, this is the first reported case of infection without outward signs in an infant born during the mother's acute phase of polio. Further investigation, though, may show this sort of infection to be common, they said.

The infant, born about two weeks after the mother developed an acute case of polio, was "normal" and remained "well" at all times. However, laboratory examination of rectal swabs showed him to be infected with the same polio virus as his mother was.

Examination of his blood serum revealed many antibodies. At three months, the infant's antibody level was approximately the same as his mother's.

He apparently manufactured his own antibodies, since the cord fluid at birth contained very few and he was never breast fed, they said. This indicates that the mechanism for manufacturing antibodies was well developed even in the first months of life, they said.

The infant probably acquired the infection before birth, since the placenta contained viruses. However, he may have been contaminated with the mother's virus during delivery, they said.

The report was made by Drs. Alexis Shelokov and Karl Habel from the laboratory of infectious diseases, National Microbiological Institute, National Institutes of Health, Bethesda, Md.

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Niacinamide.....	25 mg.
Pyridoxine (B ₆).....	0.5 mg.
Folic Acid.....	0.375 mg.
Calcium Pantothenate.....	5 mg.
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Vitamin B ₁₂	1 mcgm.

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Four Groups Report on New Muscle Relaxant

(Continued from Page 30)

caused unfavorable side effects in eight of them. Burning taste, loss of appetite, vomiting, and too much relaxation were noted in 15 of the 28.

Seventy patients with spasticity and other forms of uncontrolled muscular activity resulting from disease in the spinal cord or brain took the drug under the direction of Drs. Manuel Rodriguez-Gomez, Antonio Valdes-Rodriguez, and Arthur L. Drew, Ann Arbor, Mich.

The relaxing effect was best in patients with lesions in the spinal cord, especially multiple sclerosis.

The effect on patients with diseases affecting the brain, especially paralysis agitans and hemiplegia was less predictable. In some instances the drug made the symptoms worse and in others greatly improved the condition.

Gastric irritation, nausea and vomiting, and drowsiness were produced by high doses of the drug, they said.

C.M.A. Annual Session

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Sore Throat Treatment Changes Over Years

A man with a sore throat today is better off than George Washington was when he had one in 1799.

During his fatal illness, which began with a sore throat, in December of that year, Washington was treated with "the best" eighteenth century methods—"bleeding," the application of "blisters" to the neck, gargles, inhalations, cathartics, and immersion of his feet in hot water, Dr. Noah D. Fabricant, Chicago otolaryngologist, said recently.

Now treatment for sore throats includes antibiotics and sulfonamides for severe cases and the "time-tried" methods of complete bed rest, adequate amounts of fluids, salicylates for the control of fever, and irrigation of the throat with warm salt water for mild cases.

In Washington's day, the diagnostic method of chest thumping and listening was unknown and no one thought to examine his throat. His illness was diagnosed as "quinsy" and later as "cyanche trachealis," an indefinite medical term then in vogue for a severe sore throat that involved the vocal cords.

Although the exact diagnosis of his illness is a matter of dispute, it seems likely that a strain of streptococci organisms was responsible, Dr. Fabricant said in a recent issue of *Today's Health*, published by the American Medical Association.

In past years complications from "strep sore throats" were common, but now antibiotics and sulfonamides are effective weapons against the terror of streptococcus infection, he said. "Strep throats" usually start suddenly, with chills and high fever. Some patients develop a skin rash, so that sometimes it is difficult to distinguish this disease from scarlet fever.

The "common, garden-variety" sore throat usually results from irritation or infection of the back wall of the throat or of the tonsils, he said.

Acute pharyngitis is caused by many different types of microorganisms and viruses. The symptoms include sensations of burning and scratchiness, a constant desire to clear the throat, painful swallowing, fever, headache, loss of appetite, and a dry, harsh cough.

In the acute stages, pharyngitis gradually wears itself out, but bed rest, adequate amounts of fluids, and salicylates are helpful. If the fever is or remains high, use of antibiotics and sulfonamides to prevent complications may be necessary, he said.

While gargling is popular, there is considerable doubt as to its value, Dr. Fabricant said. Experiments have shown that fluids fail to reach either the back of the throat or the tonsils, because the gargling causes the back of the tongue to meet the soft palate, closing off the back part of the throat. However, it is

(Continued on Page 46)

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Sore Throat Treatment Changes Over Years

(Continued from Page 42)

possible to irrigate that part of the throat with a syringe.

Various studies have shown that ordinary mouth washes "can do no more than wash," he said. They are in contact with the infected area for too short a time to kill the bacteria and viruses.

As in acute pharyngitis, antibiotics and sulfonamides have taken the "sting" out of tonsillitis. Bed rest, fluids, easily swallowed foods, and salicylates also help give relief.

C.M.A. Annual Session

Emergency Calls and Messages. Each physician should notify his own secretary regarding the *exact* section he plans to attend and the time of his attendance. It is up to the individual physician to keep his own office staff so informed. The Association will *attempt* to transmit messages to the individual physician.

In case of emergency, when the doctor cannot be located, the call will be referred to Emergency Call Service of the Los Angeles County Medical Association, DUNKIRK 5-1581.



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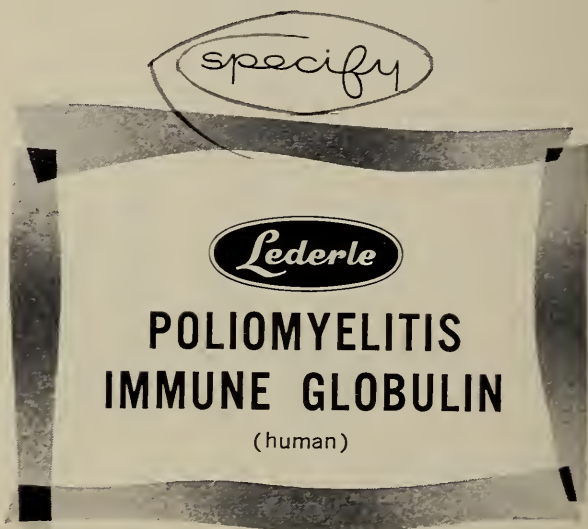
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REFERENCES: Obesity, The Problem and Treatment: Harry S. Douglas, M.D., Washington, D.C., Western JI. of Surg., Obs. and Gyn., Volume 59/5 (May, 1951) 238-244, N N R, 1951, p 193. Methamphetamine Hydrochloride U.S.P. Queries and Minor Notes: J.A.M.A., 143/14 (1950) p 1298. "The Liver in Obesity," Samuel Zelman, M.D., Arch. Int. Medicine, 90:137 (1952).



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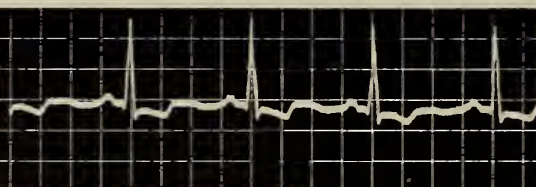


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¹ The New England Journal of Medicine 253:393, September, 1955.

² American Journal of Medical Science 229:379, April, 1955.

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A Technique for Hypophysectomy

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INDIVIDUAL NEOPLASTIC CELLS are no longer considered autonomous multiplying units under no control of the host. In recent years much investigation has been done as to the relationship of various kinds of tumors to the secretions of the endocrine glands.¹ The clinical application of the results of that investigation to human cancer received impetus from the work of Huggins in metastatic prostatic carcinoma. There are other malignant tumors that may respond to various hormones to some degree. Among them is mammary carcinoma.

Breast cancer makes up approximately ten per cent of all malignant lesions in women, and only about half of them are cured by mastectomy. Hence many patients die each year of this disease.

The administration of either testosterone or stilbestrol and the performance of oophorectomy have been tried long enough so that it is now known that while this method may work well for a time in certain cases, it is only a means of palliation. Bilateral adrenalectomy has been tried but apparently has been successful, even temporarily, in only a minority of cases. Recently hypophysectomy has been suggested. Shimkin in 1952 reported a case of malignant melanoma in which an attempt at total hypophysectomy was made.⁴ In 1953 Olivecrona presented a series of 26 hypophysectomies, of which 12 were done in patients with malignant neoplasms.² The American literature concerning the effects of

• The procedure of hypophysectomy may offer some hope in metastatic carcinoma of the breast. Certainly further clinical trial is indicated. The anterior intracranial approach through the sphenoid sinus was used in eight cases. It offers a technically easier route by which to perform hypophysectomy. The immediate risk of operation does not appear to be too great. Caution must be urged against delaying this procedure until the patient is in a terminal condition.

hypophysectomy is rapidly growing. It is not known for certain whether the effect on the metastatic lesions is produced by the involution in the adrenals or ovaries after hypophysectomy, or whether by the removal of the pituitary gland itself some growth hormone needed by the neoplastic cells is stopped directly. Regardless of the mode of action, there can be no doubt that in some cases there has been a definite effect on the metastatic neoplasm. Whether this effect will prove to be permanent in some patients, or only another means of palliation, remains to be seen.

To the authors there seems no doubt that further clinical trials are indicated. But in spite of the surprising ease of management of patients after removal of the pituitary, there have been relatively few hypophysectomies performed, and usually only in the extreme terminal stages of the disease. Besides the patient's natural fear of craniotomy, and the justified conservatism of the referring physician with regard to so new and radical a procedure, there appear to be two factors which weigh against

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Submitted June 15, 1955.

hypophysectomy. One is the operative difficulty of the procedure, which in many reported instances has necessitated abandoning the initial attempt and doing a multiple stage operation. The second difficulty is the failure in some instances to obtain

complete removal of the gland, which at present is felt to mean, in all probability, a clinical failure of neoplastic regression as well. In an attempt to overcome these difficulties, the technique of hypophysectomy herein described was devised. It attempts to combine the advantages of an intracranial approach with the older trans-sphenoidal approach to the pituitary. The procedure has been used in only eight cases and the longest period of observation at the time this report was prepared was only ten months, but the ease with which all but one of these operations was performed justifies this preliminary report.

TECHNIQUE OF HYPOPHYSECTOMY

The patient is operated on in the prone, face-forward position³ used successfully in operations for tumors in the chiasmal region for over ten years (Figure 1). The approach is made through the left frontal region. This may be through either a free bone flap as depicted (Figure 2) or through a trephine opening as was done in the last three cases in the present series. The opening is made as low

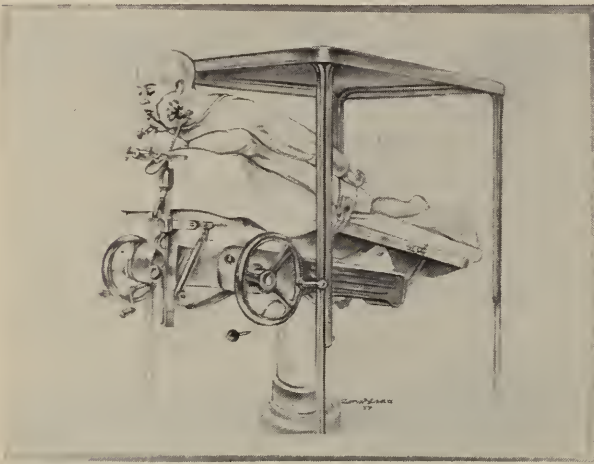


Figure 1.—Prone, face-forward position for hypophysectomy.

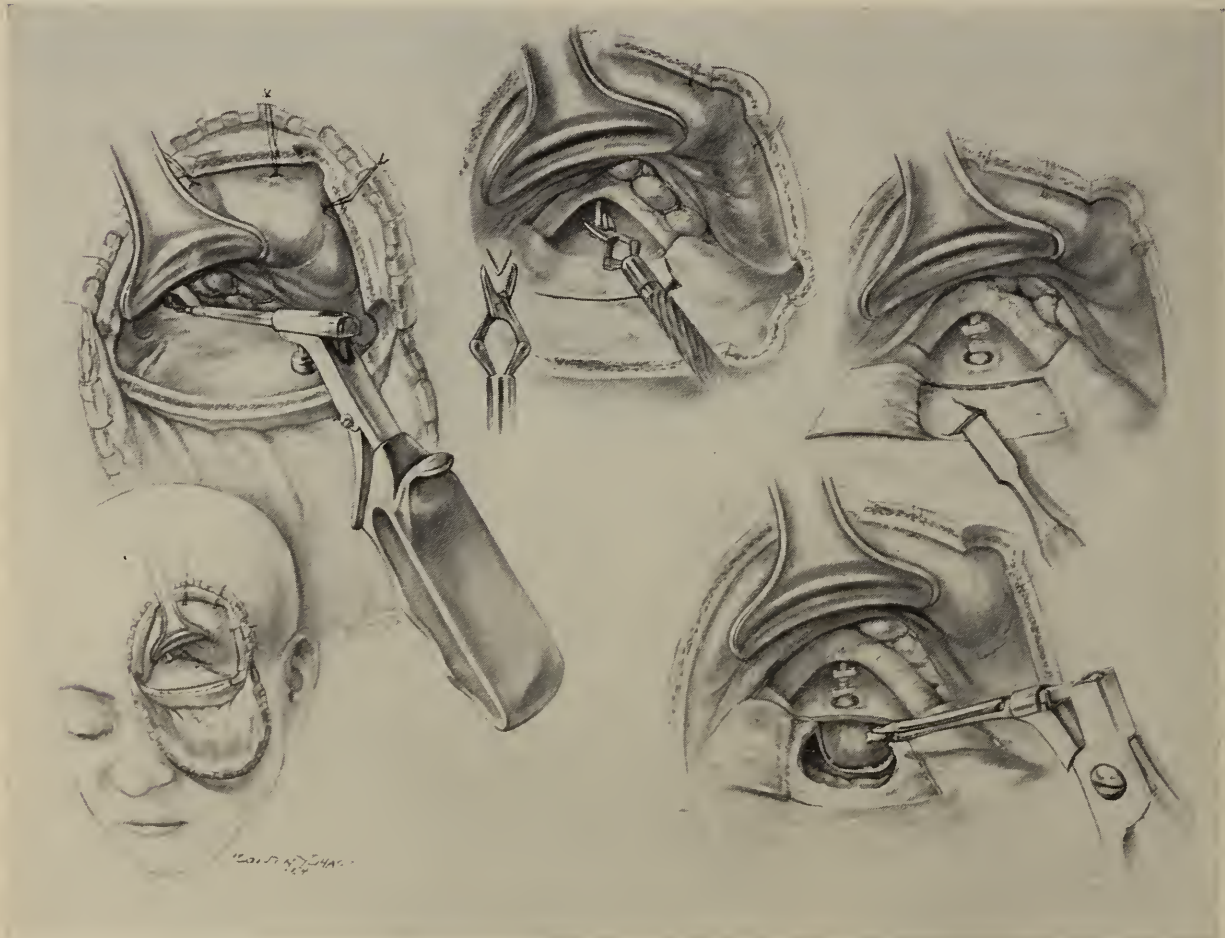


Figure 2.—Left transfrontal approach to the hypophysis. After section of the stalk, the sphenoid sinus is opened from above.

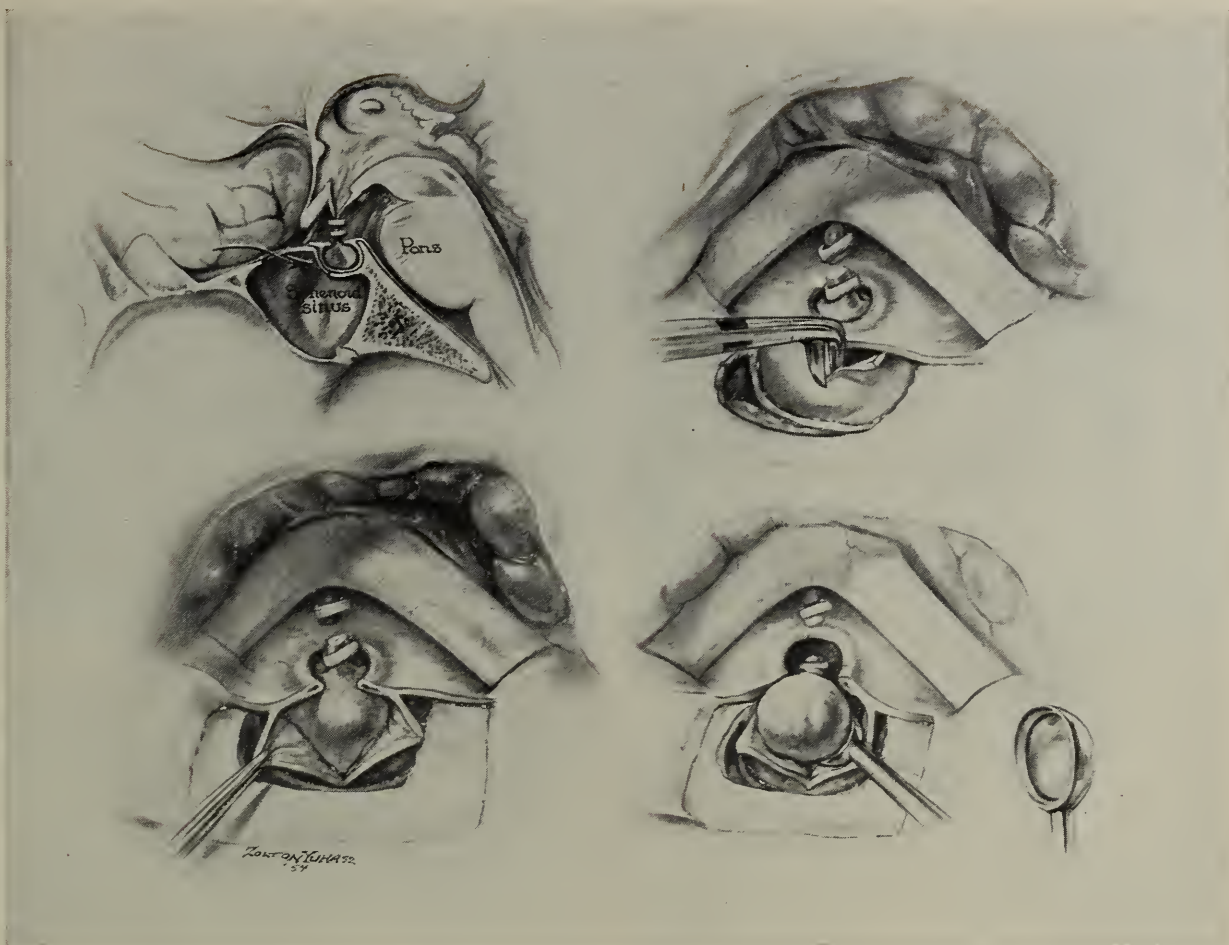


Figure 3.—The first drawing shows the approach as it would appear on lateral view. The dura is opened and the gland removed.

and as near the midline as possible. In most patients the frontal sinus will be entered. The mucosa is stripped off and folded inward and Gelfoam soaked in penicillin is placed on top. The skull opening is made as near the sagittal sinus as possible to facilitate viewing behind the left optic nerve when removing the gland. In one case bifrontal trephine openings were made, and in one case a midline trephination was done with ligation of the lower end of the sagittal sinus and transection of the falx. However, the improved exposure obtained was not considered important enough to justify retraction on both frontal lobes in future cases. Inspection behind the left optic nerve is now done with a dental mirror.

The dura is stripped off the floor of the left anterior fossa and then opened posteriorly. The procedure cannot be done entirely extradurally because of risk of damage to the optic nerve in the process of stripping the dura off the optic canal entrance. To work entirely extradurally within this limitation would so limit the exposure that the original Cushing transnasal trans-sphenoid approach

would probably give as much room to work—hardly sufficient to extirpate the entire gland and inspect for remaining tissue.

Hence this becomes a transdural approach. The pituitary stalk is clipped and sectioned. After a small dural flap is turned, the sphenoid sinus is entered from above (Figure 3). The mucosa can usually be kept intact and packed down. The anterior wall of the sella is rongeured away and the dura opened. Although the pituitary capsule is usually described as being fused with the dura, there is a good plane of cleavage except at both lateral poles where the lateral dura is the medial wall of the cavernous sinus. However, the intact gland can be teased out with a minimum of bleeding. The cavity is inspected and scraped, and then cotton pledgets soaked in Zenker's solution are packed in briefly. These are removed, the wound is irrigated well, then the brain is allowed to fall back down on the dura, which is not sutured.

COMPLICATIONS

In the first case in which the operation was performed, the sphenoid sinus was not packed, and

the dural flap was not replaced. Postoperatively the patient had cerebrospinal fluid rhinorrhea for approximately three weeks, which ceased spontaneously and did not recur.

In two cases there was considerable venous bleeding from the cavernous sinus upon removal of the lateral portion of the gland. With the use of controlled hypotension and a short period of packing, the hemorrhage was easily controlled.

In the seventh and most technically difficult case, a midline trephination was used. A tear in the sagittal sinus caused considerable hemorrhage. After a difficult approach through an unusually shallow sphenoid sinus, further hemorrhage was encountered upon removal of the gland. The patient had a period of shock and the blood pressure could not be recorded. Postoperatively the patient had mental slowness and spastic paresis of the left arm.

Postoperatively all patients tested were found to have anosmia.

On theoretical grounds it might be expected that any procedure which opens into the frontal and sphenoid sinuses, and above which the dura is left open, sooner or later should lead to the complication of meningitis or abscess. It can only be stated that none of the patients who have had the operation so far has had any postoperative infection or even significant fever.

One patient, the last one operated upon, had diabetes insipidus postoperatively, severe enough to require posterior pituitary extract insufflation. Whether this indicated incomplete hypophysectomy or merely damage to the hypothalamus remains to be seen.

IMMEDIATE RESULTS

This preliminary report is presented only to illustrate technique. No mention of preoperative or postoperative care will be made. It is still too early to make any statements regarding long term results. However, a few remarks are indicated regarding the immediate postoperative condition of the first eight patients. One patient was poorly chosen for the operation. The tumor, ovarian carcinoma, did not respond to hypophysectomy. Ascites increased and the patient died at home two months postoperatively from extension of malignant disease. Autopsy was not done.

The other seven patients all had mammary carcinoma treated by mastectomy with subsequent metastasis. Two patients died postoperatively, both with intracranial metastasis unsuspected preoperatively. One of the patients who died was a woman with known metastasis for four years; the bones were riddled with metastatic lesions, and numerous pathological fractures had occurred. X-ray therapy, testosterone and oophorectomy had been used. At

the time of operation the patient was in a terminal state but her sensorium was clear. Postoperatively, she was awake but signs of increased intracranial pressure soon appeared and death occurred on the sixth postoperative day. The second death occurred six weeks postoperatively, apparently from progressive increased intracranial pressure. At postmortem examination a solitary metastatic lesion located in the midcerebellum and pressing on the upper pons was noted. In neither of these cases could any remaining pituitary tissue be seen grossly. Sections of the sella were made in both cases and in one there was remaining pituitary which appeared microscopically to be composed of minute fragments free in the clot lining the inside wall of the sella. At the time of this report, the other five patients were alive from ten months to two weeks postoperatively.

The first two cases are reported briefly herewith as examples of good short term results which encourage continuance of this investigation.*

CASE 1. The patient was a 47-year-old white woman who had left radical mastectomy in 1951 for carcinoma. In September 1953 the patient began to complain of severe back pain. In December 1953 she was referred to the Tumor Board of the Huntington Memorial Hospital. A diagnosis was made of widespread bony metastases on the basis of roentgenogram findings. Testosterone and x-ray therapy were administered. Pain slowly subsided and the patient was asymptomatic until April 1954. She was admitted to the hospital on May 23, 1954, complaining of severe neck pain with radiation down both arms, pain in the rib cage with breathing, and pain in the low back. There was no evidence of recurrence locally and no enlargement of axillary lymph nodes. X-ray films of the cervical spine showed almost complete collapse of the third vertebra.

Hypophysectomy was performed on May 28, 1954. Following craniotomy the only complication was transient spinal fluid rhinorrhea.

The patient was returned to her home on June 12. The only medication was salt, 1 gm. four times daily, cortisone 12.5 mg. twice daily, and desiccated thyroid, 32 mg. twice daily, all by mouth. She received no further testosterone and no corticotropin (ACTH) or desoxycorticosterone. Because of rapid gain in weight the amount of desiccated thyroid was later increased to 0.13 gm. a day.

At the time of this report the patient was continuing to do well, with no further radicular pain in the neck and no thoracic or lumbar pain. The cervical vertebral lesion was observed closely by serial x-ray films. No further bone destruction was seen and the latest films suggested beginning recalcification in the involved area.

*The care of both these patients in the Huntington Memorial Hospital was made possible by the Tumor Clinic Auxiliary to whom the thanks of the authors are due.

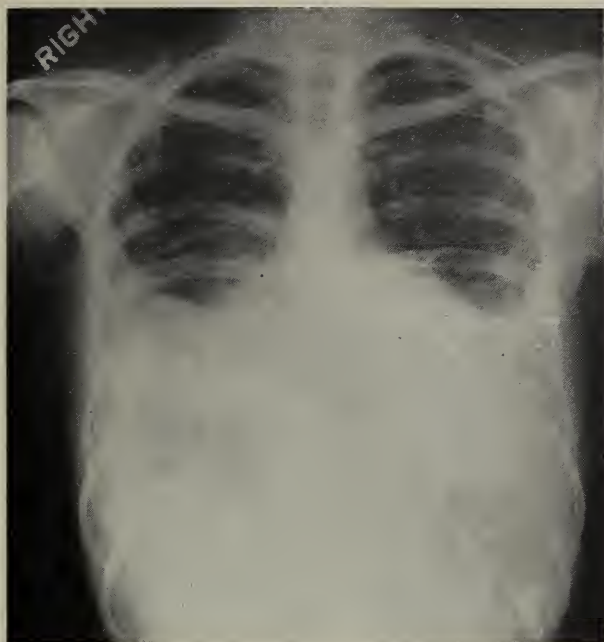


Figure 4.—*Left*, Preoperative x-ray film of chest (Case 2). *Right*, Five months after operation.

CASE 2. A 49-year-old white woman had radical mastectomy on July 3, 1947, for Grade III scirrhous adenocarcinoma of the right breast. Axillary lymph node metastases were proven April 14, 1953. Multiple generalized subcutaneous nodules developed, as well as recurrence in the mastectomy scar. Bilateral pleural effusions began (Figure 4). X-ray therapy and testosterone were administered and there was some subjective temporary improvement.

The Tumor Board of the Huntington Memorial Hospital referred the patient to the neurosurgical department as a possible candidate for hypophysectomy. At the time of hospital admission, the patient weighed 87 pounds and weekly thoracentesis was necessary. She was extremely dyspneic. Prior to operation, bilateral thoracentesis was done and 1,600 cc. of fluid was removed. Examined by the Papanicolaou method it was observed to contain malignant cells.

On June 17, 1954, hypophysectomy was performed. On June 25, 1954, biopsy of a subcutaneous nodule revealed carcinoma. Only half of the nodule was excised. The patient did well postoperatively and was discharged home under her own care. Postoperatively she was given desiccated thyroid 32 mg. twice daily, cortisone 12.5 mg. twice daily, and 1 gm. of salt three times a day, all by mouth. She did not receive testosterone, corticotropin or desoxycorticosterone. After operation thoracentesis was not required. Pleural effusions were greatly diminished (Figure 4). The body weight increased 18 pounds. At the time of this report the patient was at home taking care of a teen-age son and had no complaints. It should also be noted that the subcutaneous nodules and the recurrence of lesions in the mastectomy scar disappeared. In March 1955 the scar at the site of the previous subcutaneous biopsy was excised. The remaining half of the pre-

vious nodule could not be palpated. Histologic study failed to reveal any cancer cells.

COMMENT

Hypophysectomy in cancer of the breast should probably be done only after hormone therapy has been tried and is no longer sufficient. It may prove that a good previous response to testosterone is prognostic of a good result from hypophysectomy.

Hypophysectomy done in the manner outlined is felt to be technically a simpler procedure than bilateral adrenalectomy. The patients are also apparently easier to maintain after hypophysectomy than after adrenalectomy.

Theoretically, mammary carcinoma should be influenced hormonally to a greater degree in younger patients. They also make better surgical candidates if operation is done early. If metastasis has already progressed too far, then the surgical mortality must certainly rise sharply. The two deaths due to intracranial metastasis in the present series stand as warning against prolonged indecision before attempting hypophysectomy.

696 East Colorado Street, Pasadena 1.

REFERENCES

1. Endocrinology of Neoplastic Diseases, a symposium by 18 authors, New York, Oxford University Press, 1947.
2. Luft, R., and Olivecrona, H.: Experiences with Hypophysectomy in Man. *J. Neurosurg.* 10:301-316, 1953.
3. Shelden, C. H., Pudenz, R. H., and Restarski, J. S.: A New Position for Frontal Craniotomy. *J. Neurosurg.* 2: 546-550, 1954.
4. Shimkin, M. B., Boldrey, E. B., Kelly, K. H., Bierman, H. R., Ortega, P., and Naffziger, H. C.: Effects of Surgical Hypophysectomy in Man with Malignant Melanoma. *J. Clin. Endocrin.* 12:439-453, 1952.

The Heart and Alcohol

MAURICE ELIASER, JR., M.D., San Francisco, and
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THE PATHOLOGICAL EFFECTS of chronic alcoholism are usually considered primarily to be the result of associated nutritional deficiencies.⁸ Peripheral neuritis, pellagra, central nervous system disturbances and cirrhosis of the liver are the most well recognized complications in chronic alcoholics.⁷ The cardiovascular effects of both acute and chronic alcoholic intake are often overlooked except for the well known entity of beriberi heart disease.^{6, 15}

The results of alcohol ingestion are dependent upon several basic pharmacologic principles that apply to other drugs. The amount consumed, the speed of absorption, the rate of catabolism and excretion in addition to other factors such as the nutritional status of the individual are all involved. The rate of oxidation of alcohol is directly proportional to the integrity of hepatic function as well as being intimately related to the speed of absorption from the gastrointestinal tract. In persons with impaired liver function the toxic effects of alcohol are increased. This is an important factor in the production of degenerative changes in several other organs, including the heart.

When moderate amounts of alcohol are consumed there is a quickening of the pulse rate; the rate then becomes slower as the dosage is increased, owing to a depressant effect in the vasoconstrictor centers which causes a lowering of the blood pressure. In addition a vagal and a direct depressant effect on the heart muscle occurs; anoxia induced by toxic effects on the respiratory center is also involved.³ Visceral vasoconstriction with peripheral vasodilatation occurs with moderate dosage and the net increase in peripheral resistance is demonstrable as a rise in mean arterial blood pressure. Because the systolic pressure elevation exceeds that of the diastolic, the stroke volume output is increased. Pulmonary arterial pressure and blood carbon dioxide tension increase in conjunction with a decrease in pulmonary aeration.¹² The clinical cardiac manifestations of acute alcoholic intake in relation to progressively rising blood concentrations are: (1) Tachycardia and systemic arterial hypertension; (2) Cardiac arrhythmias; and (3) Anoxia with bradycardia, hypotension and ultimate asystole

- The cardiovascular effects of the ingestion of ethyl alcohol are determined by the amount consumed and time factors as well as the nutritional status of the individual.

Acute alcoholism produces various cardiac manifestations that are related primarily to the concentration of alcohol in the blood.

Chronic alcoholism is associated with three identifiable cardiovascular syndromes that have been designated alcoholic myocardosis, nutritional heart disease and beriberi heart disease. Differentiation is indicated because of their respective distinguishing diagnostic features and prognostic implications.

The therapeutic effects of alcohol in coronary artery disease are apparently attributable to cerebral responses rather than demonstrable increase in coronary blood flow.

which is caused by asphyxia rather than a direct myocardial effect.

Prolonged alcoholism brings about various cardiac abnormalities which are related not only to the amount and duration of the ingestion but also to the associated nutritional habits and hepatic status. Three well defined types of heart disease in chronic alcoholics have been observed:

1. Alcoholic myocardosis, which is unrelated to vitamin deficiency or liver disease and is characterized by electrocardiographic changes giving evidence of abnormal left ventricular repolarization simulating a so-called "digitalis effect" and/or evidence of left ventricular enlargement. These changes were present in 57.4 per cent of a group of 94 chronic alcoholic persons whose average age was 42 years and who had no other manifestations of heart disease as observed by clinical or laboratory diagnostic methods. These abnormalities were not present in electrocardiograms made several days after alcohol intake was discontinued.⁴

The abnormal cardiographic patterns were considered to be the result of the cumulative effects of ethanol on cardiac muscle, inasmuch as acute alcoholism is not associated with these changes. Awareness of these electrocardiographic concomitants can be of considerable importance in the diagnosis of otherwise occult chronic alcoholism. Likewise, recognizing the relationship will obviate the misinterpretation of such tracings as being caused by digitalis, left ventricular hypertrophy or both.

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TABLE 1.—*Physiologic Effects of Moderate Alcohol Intake*

1. Increase in pulse rate.
2. Increase in mean blood pressure (systolic more than diastolic).
3. Peripheral vasodilatation with visceral vasoconstriction (net increase in peripheral resistance).
4. Increase in stroke volume output.
5. Increase in pulmonary arterial pressure.
6. Decrease in pulmonary aeration with rise of blood carbon dioxide tension.

2. Nutritional heart disease which is associated with malnutrition and progressive liver disease was described in 1950 by Suzman¹⁴ and later by Gillanders⁵ following a study of Bantu natives in South Africa. Dyspnea, anasarca and peripheral neuritis in conjunction with high venous pressure, low pulse pressure, cardiac enlargement, hepatic engorgement and gallop rhythm were noted clinically in these patients. Circulation time was prolonged, kidney function was normal and x-ray films of the chest showed pulmonary venous engorgement and globular shaped cardiac enlargement. Decreased pulsation was observed fluoroscopically. Electrocardiograms showed left ventricular enlargement in 70 per cent of patients, right ventricular hypertrophy in 5 per cent and right bundle branch block in 10 per cent; in the remainder there were no predominating patterns.

When adequate diets were given, the cardiac manifestations subsided usually within one month in the less severe cases. In the seriously affected patients the condition progressively worsened and resulted in death. Cardiac glycosides were of no value in treatment in spite of the apparent low output type of cardiac failure. Biopsy of specimens of liver showed extensive fatty and pigmentary cirrhosis in all patients regardless of the outcome of the cardiac lesions. In the cases of death from cardiac insufficiency there was demonstrable hypertrophy of myocardial muscle fibers and interstitial fibrosis without hydropic degeneration.

3. Beriberi heart disease which has been well known since Wenckebach's description in 1934¹⁶ is the most severe form of cardiac involvement that results from chronic alcoholism. It is characterized by anasarca, generalized cardiac enlargement, high-output failure with increased pulse pressure, dilatation of peripheral arterioles, tachycardia, rapid circulation time, low arteriovenous oxygen difference, enlargement of the pulmonary artery and electrocardiograms showing low voltage.^{2, 9} Circulatory collapse and sudden death are common and the prognosis is generally poor in the alcoholic type in spite of excellent care and presumably specific therapy.

The possibility that these three entities represent only different degrees of severity of a single path-

TABLE 2.—*Effects of Excessive Acute Intake of Alcohol*

1. Bradycardia (vagal and direct cardiac depressing effect).
2. Depression of vasoconstrictor center with hypotension.
3. Depression of respiratory center, anoxia and secondary asystole.

Excessive chronic intake produces:

1. Primary myocardial fatty infiltration and degeneration with subsequent dilatation.
2. Secondary manifestations of nutritional alterations (hepatic, edema and beriberi).

TABLE 3.—*Clinical Cardiac Manifestations of Alcoholism*

Acute:

1. Tachycardia and increased blood pressure.
2. Cardiac arrhythmias.
3. Anoxia, bradycardia and hypotension.

Chronic:

1. Without vitamin deficiency (alcoholic myocardosis).
2. With hepatic insufficiency (nutritional heart disease).
3. Beriberi heart disease.

ologic process has been considered. However, the diagnostic aspects and prognostic implications are sufficiently distinctive to warrant their segregation for clinical purposes.

The therapeutic uses of alcohol are primarily related to the cerebral effects of the drug, in which dosage plays the most important part. Beginning with small quantities the responses are, progressively, sedation, hypnosis, analgesia and ultimately anesthesia.⁷ The beneficial effects of alcohol in syncope are attributable to the pharyngeal and esophageal irritative reactions resulting in reflex stimulation of breathing and production of tachycardia through local action, and are unrelated to absorption. In the treatment of acute pulmonary edema 50 per cent ethanol by inhalation has proved an effective "wetting agent," usually used in conjunction with oxygen by mask or nasal catheter.¹⁰ The tonic effects of alcohol are based upon the response of increased gastric secretion and motility plus the relaxing and fatigue-suppressing cerebral effects. In addition the caloric value, approximately 100 calories per ounce of whiskey, is to be considered.

As a vasodilator ethyl alcohol has been reputed to be of value in coronary artery disease¹⁷ since 1772 when Heberden suggested its use in angina pectoris. Convincing experimental proof that the drug has any visceral vasodilating effects is lacking.^{11, 13} Beneficial peripheral vascular responses have been repeatedly demonstrated, but not an effect upon cerebral or coronary arterial blood flow. Low to moderate concentrations of alcohol in the blood have been shown to produce no change in either cerebral blood flow or oxygen consumption¹ and it is for this reason that any beneficial therapeutic effects of the drug in cerebrovascular disease must be considered more psychic than physiologic. When

high blood levels are attained, there is an increase in cerebral blood flow with significant deleterious fall in oxygen consumption. It has been suggested that similar phenomena occur in the myocardium in regard to both coronary blood flow and oxygen utilization.

In patients having coronary artery disease the moderate use of alcohol as a relaxant because of its cerebral effects is acceptable. Excessive dosage leading to euphoria with the probability of prolonged or strenuous physical stresses such as dancing or demonstration of feats of great strength should be avoided.

As a prophylactic agent for arteriosclerosis there is no valid evidence that alcohol is effective. Contrariwise it has not been shown to induce or hasten the process of atherosclerosis.⁷

655 Sutter Street, San Francisco 2.

REFERENCES

1. Battey, L. L., et al.: The effects of ethyl alcohol on cerebral blood flow and metabolism, *J.A.M.A.*, 152:6, May 2, 1953.
2. Blankenhorn, M. A.: The diagnosis of beriberi heart disease, *Ann. Int. Med.*, 23:398, 1945.
3. Davison, F. R.: *Handbook of Materia Medica, Toxicology and Pharmacology*, C. V. Mosby, St. Louis, pp. 401-409, 1949.
4. Eliaser, M., Jr., and Giansiracusa, F.: *Ier Congres Mondial de Cardiologie, Communications*, Vol. II, pp. 307-311; *Electrocardiographic Changes Associated with Chronic Alcoholism*, J. B. Bailliere et Fils, Paris, 1952.
5. Gillanders, A. D.: Nutritional heart disease, *Brit. Heart J.*, 13:177, 1951.
6. Goodhart, R., and Jolliffe, N.: The role of nutritional deficiencies in the production of cardiovascular disturbances in the alcohol addict, *Amer. Heart J.*, 15:569, 1938.
7. Haggard, H. W.: *Alcohol, Science and Society*, Quart. J. of Studies on Alcohol, New Haven, 1945, pp. 73 and 59.
8. Jellinek, E. M.: *Alcohol Addiction and Chronic Alcoholism: Effects of Alcohol on the Individual*. Yale University Press, New Haven. Vol. I, 1942.
9. Keefer, C. S.: The beriberi heart, *Arch. Int. Med.*, 45:1, 1930.
10. Luisada, A. A., Golmann, M. A., and Weyl, R.: Alcohol vapor by inhalation in the treatment of acute pulmonary edema, *Circulation*, 5:363, 1952.
11. Russek, H. I., Urbach, K. F., Doerner, A. A., and Zohman, B. L.: Choice of a coronary vasodilator drug in clinical practice, *J.A.M.A.*, 153:207, Sept. 19, 1953.
12. Sollman, T.: *Manual of Pharmacology*, W. B. Saunders. Philadelphia, pp. 697-720, 1943.
13. Starr, I.: Geo. E. Brown Memorial Lecture: Physiologic consideration concerned with pathogenesis and treatment of obstructive vascular disease, *Circulation*, 6:643, 1952.
14. Suzman, M. M.: *Ier Congres Mondial de Cardiologie, Communications*, Vol. II, pp. 495; *Nutritional Heart Disease*, J. B. Bailliere et Fils, Paris, 1952.
15. Weiss, S., and Wilkins, R. W.: The nature of cardiovascular disturbances in nutritional deficiency states, *J.A.M.A.*, 109:786, 1937.
16. Wenckebach, K. F.: *Das Beriberi-Herz, Morphologie und Klinik, Pathogenese*, J. Springer, Berlin, 1934.
17. White, P. D., and Sharber T.: Tobacco, alcohol and angina pectoris, *J.A.M.A.*, 102:655, 1934.



Intestinal Obstruction in the Newborn

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THE MOST COMMON CAUSE of intestinal obstruction in the newborn is atresia. In a collective review of the subject in 1951, Evans⁷ estimated that each year 3,000 babies in the United States and 50,000 babies in the world are affected with this condition. The most commonly accepted etiologic theory is that during the fifth to twelfth week of intrauterine life the intestinal tract goes through a solid stage for a short period, that vacuoles then appear which coalesce and reestablish the lumen, and that an arrest in this vacuolization causes the atresia.

Until recently, obstruction in the newborn was almost always fatal. Up until 1950 there were only 125 successfully treated cases recorded in the literature. Recovery is not a rarity today, but the mortality from intestinal obstruction remains high. Prematurity and associated anomalies are certainly the greatest cause of the high mortality, and not much can be done about those factors; but delay in diagnosis and treatment, which is a considerable factor, is subject to correction. Physicians who attend infants must constantly keep obstruction in mind.

Vomiting in the first few days of life is not uncommon, but when there is bile in the vomitus and distention of the abdomen, intestinal obstruction must be seriously considered among the possible causes.

Newborn babies with complete intestinal obstruction will invariably die if not treated within a few days. In light of the ease with which perforation occurs in ileal atresia, delay of even a few hours may make the difference between success and failure. Distention may begin in utero, and the authors suspect that, in one of the ten cases reported upon herein, perforation also occurred in utero, for x-ray studies showed calcium in the wall of an abdominal abscess (see Figure 1 and Case 7 in Table 1). A child swallows air immediately at birth and continues to do so as he cries. Normally the stomach fills with air almost immediately, the small bowel in two to twelve hours and the colon in 18 to 24 hours. This is of great importance in confirming the diagnosis of obstruction by x-ray. Usually a plain film is all that is necessary to make the diagnosis, since the gas pattern is distinctive and often will give a

• Any newborn who continues to vomit in the first few days of life, particularly if the vomitus contains bile and if the abdomen is distended, should have immediate investigation because intestinal obstruction in the newborn is a fatal condition unless promptly recognized and surgically corrected. The most common cause of obstruction at this age is atresia and the simplest possible surgical procedure which adequately corrects this deformity should be done. It is also possible to successfully correct the obstruction caused by other congenital deformities such as annular pancreas and meconium ileus.

Although prematurity is a definite factor in the outcome, intestinal obstruction in the newborn can be corrected with a surprisingly low mortality. Occasionally unusual methods are needed to tide these infants over the critical period of postoperative care.

clue as to the site of obstruction. Radiopaque material should not be introduced by mouth in babies with obstruction. A barium enema is more logical, for if atresia of the colon is present it can be demonstrated thereby. This is important since it is difficult to expose the colon for its whole length at the time of operation. Barium enema also distinguishes the distended small bowel loops from the large bowel, which helps in differentiating malrotation or megacolon. However, the decision as to the diagnosis and whether or not to operate usually can be made on the basis of history, clinical features and the plain film, and other diagnostic procedures only waste time.

The pediatrician and the surgeon might well function as a team in dealing with obstruction in a newborn baby. The surgeon can be called when the diagnosis is suspected and can help direct the diagnostic procedures and the preoperative care. As soon as possible a polyethylene tube is tied in a vein, preferably in one of the ankles. Children with obstruction are invariably dehydrated and fluids can be started at once. Necessary determinations with regard to the blood then can be made and blood for transfusion made available. A polyethylene tube should be passed into the stomach and suction started. It is a good idea to put the patient in an incubator to prevent heat loss and to facilitate oxygen therapy. When the pediatrician and the surgeon are satisfied that the child is in the best condition attainable in the time permitted, he can

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Figure 1 (Case 7)—Calcium in wall of abdominal abscess.



Figure 2 (Case 1)—The "Double Bubble" of duodenal obstruction.

TABLE 1.—Data on Ten Infants with Intestinal Obstruction

Case No.	Maturity	Sex	Site of Obstruction	Other Anomalies	Result of Operation
1.	Premature, 3 lb. 12 oz.	F	Duodenum (annular pancreas)	Mongolian idiot	Alive
2.	Premature, 3 lb. 4 oz.	F	Duodenum (annular pancreas)	None	Died
3.	Term twin	F	Atresia of duodenum	None	Alive
4.	Term, 3 mo. of age	M	Malrotation with duodenal obstruction and volvulus of the small bowel	None	Alive
5.	Term	M	Ileal atresia with perforation	Malrotation; inguinal hernias	Alive
6.	Term	M	Multiple jejunal atresia	Duodenal diverticulum	Alive
7.	Premature, 3 lb. 6 oz.	M	Ileal atresia with perforation	None	Died
8.	Term	F	Atresia ascending colon	None	Alive
9.	Term	M	Meconium ileus	Cystic fibrosis	Alive
10.	Premature, 3 lb. 3 oz.	M	Meconium ileus	Malrotation	Died

be transferred to the operating room in the incubator.

To conserve heat, the authors place a blanket on a large flat pudding pan inverted over a warm hot-water bottle on the operating table. The child is not removed from the incubator until everything is in readiness. His arms and legs are wrapped with sheet wadding and tied to the table as he is placed on the inverted pan. It is of great importance to secure an anesthetist who is used to anesthetizing infants. Some prefer the drop method of administering ether, others a tight-fitting mask or an intratracheal tube. Not until fluids or blood for intravenous infusion are flowing satisfactorily is the

incision made. The pediatrician should be present in the operating room not only to help the anesthetist with the fluids but also to give advice as to the condition of the child.

The magnitude of the operative procedure newborn infants can tolerate is astonishing. Since the outcome is otherwise fatal, the authors have been quite aggressive with operative procedures and have sometimes been surprised at the favorable outcome. Although some were extremely premature, it was possible to get all of the infants in a sufficiently good state to withstand operation.

A generous right paramedian incision was used in the cases herein reported upon. No abnormality

was encountered which could not be satisfactorily exposed through this incision. Meticulous hemostasis is important, since blood depletion can occur quite rapidly. After a preliminary survey, it saves much time if all of the intestines are brought out onto the abdomen. This has not produced shock and it helps immeasurably in ascertaining the correct diagnosis and carrying out a definitive procedure.

The simplest procedure that will physiologically restore bowel continuity is the best. This is usually a generous side-to-side anastomosis to circumvent atresia. It is preferable to make an isoperistaltic anastomosis, but when the bowel lies more comfortably in an antiperistaltic position, anastomosis in that position has been used with no apparent untoward results. The anastomosis used by the authors is made over a catheter in the collapsed loop, to prevent occlusion as described by Gross.² Continuous 0000 chromic catgut on an atraumatic needle is used, and it is reinforced with interrupted fine black silk. The rest of the intestinal tract, biliary passages and diaphragms are quickly examined for other anomalies. The abdomen is then closed in layers and the child replaced in the incubator and returned to his room.

The pediatrician's help is invaluable in the postoperative care. Suction on the gastric tube is continued until peristalsis is heard. In the authors' experience, a polyethylene catheter can be left in the stomach continuously for two or three days without untoward effect. Appropriate fluids and vitamins are given during this period, using a continuous drip through the needle that was placed in the vein preoperatively. After a few days of intravenous feedings, it is well to ascertain the chemical factors in the blood so that guesswork is eliminated. Appropriate antibiotics are continued as long as the possibility of infection exists. When feeding is started, it is usually under the direction of the pediatrician with the advice of the surgeon. Obstruction in the postoperative period must be vigilantly watched for and the cause must be ascertained at the earliest moment. Reoperation is usually well tolerated and one should not hesitate to undertake even multiple procedures, since the outcome is otherwise fatal. One of the patients in the present series (Case 6, Table 1) was operated upon three times in the first ten days of life and the ultimate outcome was success.

Intestinal obstruction in the newborn may be divided into three types: Duodenal, jejunoileal and colonic. The cause of duodenal obstruction may be atresia, which is usually distal to the ampula of Vater, or there may be an associated annular pancreas. This is treated by anastomosis around the obstruction as previously described. Duodenal ob-

struction not uncommonly is associated with other congenital anomalies; probably the most often mentioned is mongolian idiocy. There is usually moderate distention in the upper abdomen and peristaltic waves are usually visible. X-ray films show the stomach and a portion of the duodenum to be filled with gas—the so-called "double bubble" (Figure 2, Case 1). Duodenal obstruction may also develop from extrinsic causes, malrotation of the colon being the most common. In that condition there is an adhesive band from the cecum across the duodenum. The duodenum has not rotated behind the superior mesenteric vessels. It is sometimes accompanied by a volvulus of the small bowel because of an abnormal attachment of its mesentery. This type of obstruction is often intermittent or incomplete and, although present at birth, may not be recognized as a true obstruction for several months or even years. For treatment, the Ladd operation, which has become quite well known, is highly successful.

The jejunoileal obstructions which are most commonly seen in the newborn are atresias, meconium ileus being less common. The mortality rate from atresia of the ileum is much higher than from atresia of the duodenum, owing to the greater incidence of early perforation. Since the bowel contents are sterile for the first 24 to 48 hours after birth, perforation may not be so grave an event as it once was considered, but it does cause a chemical peritonitis, which adds to the gravity of an already serious situation.

Meconium ileus was first described by Landsteiner in 1905. Not until 1942 was there a report of a case in which a patient with severe obstruction from this cause survived. The condition involves a pancreatic cystic fibrosis with deficiency of pancreatic secretions. The abnormal meconium is present because of the lack of secretions to digest it. The degree of obstruction varies from a small meconium plug which passes spontaneously, to complete obstruction of the small bowel. There is hypertrophy and dilatation of the small bowel, which is filled with sticky, tenacious meconium and the distal ileum may be filled with firm gray concretions. Occasionally these concretions can be removed through an ileotomy and the proximal bowel washed out. In some cases resection of the involved ileum or an ileostomy is the best treatment. Many solutions have been used for irrigation of the inspissated meconium but none has been very successful.

Atresia of the colon is much less frequent than of the small bowel. In 1954 Wilson⁴ reported the seventh case in which a patient survived operation for colon atresia and only one of those surviving had atresia in the proximal colon. In the one case

reported in the present series anastomosis circumventing the atresia was successful and resection was not necessary.

One problem which is being mentioned with increasing frequency is that of the nonfunctioning anastomosis. A typical case is one in which an obstruction of the small bowel is observed at operation to have a greatly dilated small bowel proximal to the obstruction. The obstruction is corrected by an adequate anastomosis, often accompanied by resection of a portion of the distended bowel. The anastomosis does not function; reoperation is carried out and either more of the distended bowel is resected or the anastomosis is changed from a side-to-side to an end-to-side or an end-to-end. The anastomosis still does not function and the child finally dies. At autopsy the anastomosis appears perfectly adequate but the proximal bowel remains distended and the distal bowel remains small. It is the authors' belief that the reason for this situation is that the distended bowel has not been decompressed for a sufficient period of time to allow it to regain its tone. It is felt that two things are necessary to correct the situation. First, the proximal bowel must be kept decompressed and, secondly, at the same time, the child must be fed so that his nutritional state can be well maintained. In Case 6 (Table 1) these requirements were satisfied. In that case the obstruction was in the distal jejunum, and maintaining adequate decompression with a nasogastric tube was almost impossible. Possibly a plastic intestinal tube with a mercury bag, as described by Sugarman and Swenson,³ could be used, although esophageal ulceration is a real danger in infants if the tube is left in place for any length of time. Over the past 20 years surgeons have gotten away from placing a tube directly into the bowel and bringing it out through the abdominal wall, except perhaps in the case of cecostomy. By using two such tubes, one in the proximal distended bowel for decompression and one in the distal collapsed bowel for feeding the material sucked from the proximal bowel, the requirements as previously described are satisfied (Figure 3). The method circumvents the anastomosis and maintains the nutrition without loss of essential intestinal contents and at the same time decompresses the proximal loop. It is believed that the child in Case 6 was in just such a situation and was undoubtedly saved by the procedure. A more detailed presentation of the case follows:

The patient (Case 6, Table 1), a Negro boy, was born at term. He was first seen by the authors 60 hours after birth. He had been vomiting since birth and the vomitus contained bile. There had been no bowel movements. Examination showed dehydration, abdominal distention and visible peristaltic

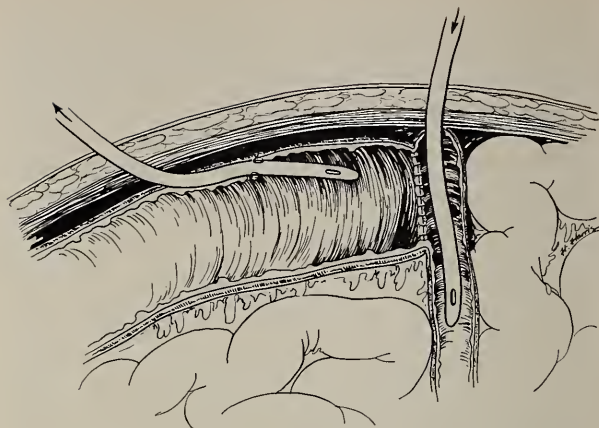


Figure 3 (Case 6)—Method of by-passing a nonfunctioning anastomosis.



Figure 4 (Case 6)—Eighteen months following operation.

rushes. Upon x-ray examination several loops of small bowel were seen to be greatly distended. At operation two areas of atresia were found in the distal jejunum about six inches apart. The two points of atresia were used to do a side-to-side anastomosis, in order to avoid a blind loop. There was also a large duodenal diverticulum. It was necessary to reopen the abdomen four days later because of the persistence of obstruction. There was no cause found for the obstruction and it was thought to be functional. The blind loop was resected along with a portion of the greatly distended proximal bowel. The end of the distended loop was anastomosed to the side of the collapsed loop. Three days later it was again necessary to open the abdomen because of continued obstruction. This obstruction was still at the point of anastomosis. There was not enough edema to cause obstruction, since the opening seemed adequate. Dilatation of

the obstructed loop was thought to have produced a functional decompensation of the smooth muscle.

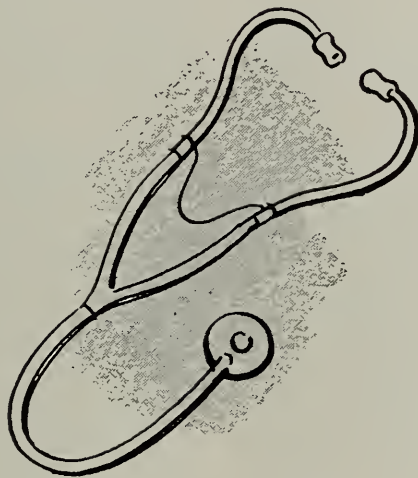
Since the child's condition was becoming critical from recurrent obstructions, it was felt that something other than another anastomosis should be attempted. A jejunostomy would, of course, have been fatal and it seemed difficult to decompress the distended loop through a nasogastric tube. A No. 10 catheter was therefore passed down the collapsed bowel and brought out through a stab wound. A Witzel catheter was placed in the distended proximal bowel and brought out through a stab wound (Figure 3). The latter catheter was placed on suction with a trap bottle. The trapped material was placed into the distal collapsed bowel through the other catheter. The child did surprisingly well. He

was maintained by mouth feedings with only occasional intravenous feedings. Bowel movements seemed to be normal. The catheters were removed on the 14th day and the anastomosis functioned thereafter. He did well thereafter, although he had a small incisional hernia (Figure 4).

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REFERENCES

1. Evans, C. H.: Collective review—Atresias of the gastrointestinal tract, *Internat. Abst. Surg.*, 92:1-8, 1951.
2. Gross, R.: *The Surgery of Infancy and Childhood*. Saunders, 1953.
3. Sugarman, H. J., and Swenson, O.: Polyvinyl intestinal tube for the newborn, *Arch. Surg.*, 68:239-260, 1954.
4. Wilson, M. D.: Abdominal surgery in the newborn, *S. G. & O.*, 100:141-148, 1955.



Antibiotic-Resistant Staphylococcus Infections

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STAPHYLOCOCCAL INFECTIONS are rapidly assuming major importance in the practice of medicine in hospitals and may soon become of concern to physicians in the fields of public health and community practice as well. At present, most strains of hemolytic staphylococci isolated from hospitalized patients in metropolitan centers, and from the physicians and nurses ministering to them, are resistant to penicillin and to so-called broad spectrum antibiotics.

The problem of antibiotic-resistant staphylococci is at least three-fold:

1. Patients acquire an illness due to antibiotic-resistant staphylococcus in the course of their hospital stay for an entirely different medical or surgical complaint from that of entry.

2. (As pointed out by Finland⁴), an increasing number of patients with serious infections presumably due to an antibiotic-sensitive organism show temporary improvement under specifically directed antibiotic therapy, then later incur staphylococcal superinfectious infections which are resistant to the antibiotics originally used. In this situation, staphylococci are the remaining opportunists causing disease in circumstances where antibiotics have temporarily wiped out virtually all other bacteria in the patient. This phenomenon has been observed recently by the author in patients who required preoperative bowel sterilization and in children who had received broad spectrum antibiotics for fairly trivial respiratory infections, most probably viral and not bacterial in nature. One clinical picture of superinfection is dysentery with cramps and explosive discharge of stools, profound toxemia, and the presence (in a smear of the diarrheic stool) of a predominance of cocci rather than the normally predominant rods. Switching to a different broad spectrum antibiotic is a common error and, possibly, a fatal one. Prompt treatment with parenteral administration of fluids and of chloramphenicol and erythromycin is indicated. It is also well to use large amounts of penicillin until evidence is conclusively obtained that the organism is penicillin-resistant. Other organisms such as *Pseudomonas*,

- Strains of antibiotic-resistant staphylococci that develop in a hospital are becoming increasingly important as a cause of untoward complications of hospitalization.

The hospital environment and hospital personnel present the chief reservoir of antibiotic-resistant strains; and they, as well as patients discharged after hospital stay, may represent the greatest source of antibiotic-resistant strains found in the community at large.

Cross infection appears to be thwarted by rigid adherence to antiseptic techniques.

Enterococcus, *Proteus* and *Monilia* may become pathogens when the normal ecologic balance of flora in a patient is radically altered by antibiotic therapy.

3. The range of antibiotics to which hospital strains of staphylococci acquire resistance has increased to include penicillin, streptomycin, and the tetracycline preparations. Many strains of staphylococci have already become resistant to erythromycin and chloramphenicol as well.

It is likely that resistant staphylococcal strains originate in the first instance by selective passage through patients who have been treated with these antibiotics; and for this reason the pattern of resistance of the staphylococcus presumably varies with the frequency with which certain antibiotics are used in particular hospitals.

It would be of considerable interest to know what might occur in the community at large when the use of one antibiotic is completely deleted and another substituted. In the sense that a hospital community might reflect such a situation, Lepper and Dowling¹⁰ provided a practical experiment by discontinuing the use of penicillin entirely in a hospital for a period of five months. When the experiment was begun, 50 per cent of the staphylococcal strains isolated from patients and hospital personnel were penicillin-resistant. The investigators substituted erythromycin which, at that time, appeared to be a highly effective agent against all strains isolated. The number of penicillin-resistant staphylococcus strains isolated from patients and hospital personnel dropped from 50 to 35 per cent when penicillin was not in use in the hospital while the number of penicillin-resistant strains rose to 83 per cent following its subsequent use in the next

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four months (Table 1). When erythromycin was first used, no strains were erythromycin-resistant. At the end of five months, 70 per cent of the strains isolated were erythromycin-resistant. On discontinuance of erythromycin, this number dropped to 28 per cent.

This experiment clearly shows that the development of bacterial strains resistant to one antibiotic pretty well depends on the frequency of its use in any given population.

In a study by the author of 100 pathogenic strains isolated at the University of California Hospital⁹ in a one-year period, the distribution of antibiotic-resistant strains was as shown in Table 2.

Most strains isolated were resistant to the most commonly used antibiotics and 30 per cent of the strains were erythromycin-resistant, while only 11 per cent were chloramphenicol-resistant. Most important, chloramphenicol has shown a striking increase in effectiveness; few strains isolated by the author are now resistant to this agent. This improvement in the situation as regards chloramphenicol coincided exactly with the pronounced decrease in its use in the preceding three years.

Attention has rightly become focused on the hospital as a chief harbinger of antibiotic-resistant staphylococci. These organisms, which in the past have had experience with all the antibiotics now being used, appear to thrive in the hospital atmosphere—on the walls, in the dust, in the nasopharynx of the permanent personnel, the physicians, nurses and ward attendants. The hospital strains are to be found in student nurses soon after they enter this hospital environment and, in the author's experience, many hospital patients, regardless of the reason for hospitalization, also quickly become hosts.

Phage typing has made it possible to trace—from the hospital environment and from the hospital personnel to the hospitalized patients—pathogenic staphylococci resistant to antibiotics. It has been observed repeatedly that antibiotic-resistant staphylococci with a given phage pattern found previously in the nasopharynx of hospital personnel and in the hospital air environment could completely replace the patient's own nonpathogenic and non-resistant flora during antibiotic therapy, in the course of a hospital stay. The importance of this "cross infection-replacement" phenomenon is great and it has many implications in hospital medicine and in public health.

Many observers^{1, 2, 5, 11, 12} have expressed belief that penicillin-resistant staphylococci in hospitals are the source of inadvertent hospital infections and that this is largely a hospital problem.

In addition to the hospital environment and the nasopharynx and skin of hospital personnel, addi-

TABLE 1.—Rate of Development of Resistant Staphylococcal Strain in Patients and Personnel of a Hospital (Study of Lepper and co-workers¹⁰)

Month	Resistant to	
	Erythromycin (Per Cent)	Penicillin (Per Cent)
Use of penicillin stopped and erythromycin started	0	50
1st	6	45
2nd	25	37
3rd	50	32
4th	64	32
5th	70	35
Use of erythromycin stopped and use of penicillin resumed:		
6th	33	60
7th	40	60
8th	33	61
9th	28	83

TABLE 2.—Pathogenic Strains *H. Staph. Aureus* Isolated at University of California Hospital, January to June, 1954

Antibiotics	Per Cent of Strains Not Inhibited <i>In Vitro</i> by Large Amounts of Antibiotics
Terra-Aureo-Achromycin	87
Bacitracin	82
Penicillin	80
Streptomycin	78
Neomycin	54
Erythromycin	30
Chloramphenicol	11

tional sources of massive cross infections have been noted by the author. On pediatric wards these include patients with infantile eczema who harbor and shed massive amounts of penicillin-resistant staphylococci and who, in a few minutes' time, heavily and almost permanently contaminate their immediate and distant hospital environment. These children can be properly labeled "skin dispensers" and they constitute a considerable hazard to other patients even in physically remote parts of the hospital. They add, of course, to the carrier state of the hospital personnel.

It must be appreciated that organisms frequently show multiple resistance to most, or all, of the available antibiotics. Multiple resistance strains constitute 70 per cent or more of strains isolated from hospitalized patients and about 50 per cent of those isolated from hospital personnel. Dukes and Dukes³ analyzed over 200 strains of staphylococci with multiple antibiotic resistance. Their evidence suggested that one-half to three-quarters of the staphylococcal infections were probably the result of cross infection in the hospital environment. The newborn baby nursery is another area where cross infection occurs as a matter of course in newly admitted patients. There is evidence¹³ that newborn babies rapidly become hosts to staphylococci. In most series described, 80 to 95 per cent

of newborn babies become heavy nasal carriers within seven days of birth (although at U. C. Hospital, at present, this occurs in less than 40 per cent of newborns).

An analysis of phage types shows that newborns do not acquire the staphylococcal flora of their mothers but that of the nurses who care for them in the nursery. These staphylococci are now virtually all penicillin-resistant.

There is evidence⁷ that infants retain the staphylococcal strains so acquired for a period ranging from seven months to a year or longer. It is quite possible that these babies, in turn, are the source of infection to their mothers and, subsequently, to the rest of the family. In this way newborn babies being discharged from hospitals may constitute a source, and serve as dispensers of antibiotic-resistant staphylococci in the general population. Of course, hospital personnel themselves constitute such a source, and in studies by the author it has been noted that the members of the immediate family of physicians and nurses working in a hospital environment usually carry antibiotic-resistant staphylococci in the nasal pharynx.

Assuming that hospital personnel, newborn infants and discharged patients all serve as dispensers, how far has this dispersal of hospital staphylococci gone? Outstanding recent studies by Fusillo and co-workers⁶ compared the incidence of antibiotic-resistant staphylococci among inpatients and outpatients, hospital personnel and a nonhospital associated group of blood bank donors. Table 3 shows the percentage of staphylococci resistant to penicillin in each of these four groups.

Table 4 shows the percentage of staphylococcus resistant to the tetracyclines in the four groups, and Table 5 shows the percentage of organisms resistant to several antibiotics.

As was expected, hospital staff and inpatients had the highest proportion of antibiotic-resistant strains of staphylococci.

Although more blood bank donors than hospital personnel had a history of having received penicillin parenterally in the preceding two years, only 18 per cent harbored penicillin-resistant staphylococci as compared with 76 per cent of the hospital personnel. It may well be, therefore, that there has been very little increase in the number of penicillin-resistant organisms in the general population in the past ten years. The same results hold for other antibiotics.

It appears that a few pathogenic resistant organisms survive by selection and become entrenched in hospital environments. That cross infection is widespread can be substantiated by phage typing. In infectious disease wards where precautions are greater, cross infections are less common than on

TABLE 3.—Per Cent of Staphylococci Resistant to Penicillin in Each of Four Groups

Group	Source	Per Cent Resistant
Blood bank donors.....	Skin	6.7
	Throat	17.8
Hospital staff	Skin	70.4
	Throat	75.7
Outpatient	Infection	32.4
Inpatient	Infection	80.5

TABLE 4.—Per Cent of Staphylococci Resistant to Chlorotetracycline and/or Oxytetracycline in Each of Four Groups

Group	Source	Per Cent Resistant
Blood bank donors.....	Skin	3.8
	Throat	1.6
Hospital staff	Skin	64.3
	Throat	50.1
Outpatient	Infection	17.6
Inpatient	Infection	71.5

TABLE 5.—Per Cent of Organisms Resistant to Penicillin, Chlorotetracycline, Oxytetracycline and Streptomycin

Group	Source	Per Cent Resistant
Blood bank donors.....	Skin	0.0
	Throat	1.6
Hospital staff	Skin	53.5
	Throat	48.7
Outpatient	Infection	13.9
Inpatient	Infection	70.0

wards where precautions do not exist. It is true, of course, that massive "skin dispensers" such as patients with infantile eczema or infected burns are generally kept on an open ward rather than an infectious disease ward. There is little point in rotating hospital personnel since this problem exists throughout the hospital, and the acquisition of resistant staphylococci remains a function of the availability of the resistant strains in the hospital environment.

Undoubtedly, attention should be directed toward more rigid controls of antiseptic technique in the care and handling of patients rather than toward increased reliance on the availability of antibiotics for use when infections do occur. The effectiveness of antibiotic therapy in the treatment of staphylococcal infections is diminishing. In the management of some clinical problems we are virtually back to where we were in 1942, as illustrated by the fact that we have been unable to save the last three patients with subacute bacterial endocarditis due to hemolytic staphylococcus aureus who were treated at U. C. Hospital, despite the most careful and massive therapy with all possible antibiotic combinations.

One principle which has emerged in the therapy of individual patients with staphylococcal infections

is that use of combinations of antibiotics is vastly preferable to treatment with a single agent. The eradication of staphylococci in medical therapy usually requires more than two or three days. If, however, erythromycin is used in the therapy of an erythromycin-sensitive staphylococcus infection and all organisms are not eliminated within two or three days, the remaining staphylococci will almost certainly be highly resistant to erythromycin. However, when penicillin is used in conjunction with erythromycin from the start, resistant strains will not emerge as readily and the therapeutic use of erythromycin can thus be extended over several weeks, if necessary.

It appears that the use of chloramphenicol or tetracycline with erythromycin similarly retards emergence of erythromycin-resistant staphylococcal strains. The author has used combinations of penicillin and tetracycline, or penicillin and chloramphenicol, or chloramphenicol and erythromycin with considerable success. The parenteral use of bacitracin or neomycin is required when more conventional antibiotic therapy fails. In children, intramuscular neomycin is well tolerated in doses of 4 mg. per pound of body weight per day given in four divided doses. Intramuscular bacitracin in doses of 600 units per pound of body weight per day given in three divided doses can be used in such instances. While both agents have a certain degree of nephrotoxicity, and intramuscular use should generally not exceed ten days, a physician should not hesitate to use these agents in patients with the serious staphylococcal infections.

There is no question that the problem of staphylococcal infections requires a carefully planned therapeutic program, which almost invariably involves the utilization of the bacteriological laboratory for isolation of the pathogen and testing for antibiotic sensitiveness. However, it must be stressed that, results of sensitivity tests with single antibiotics notwithstanding, combinations of likely antibiotics should be instituted early in the course of therapy. Finally, there are situations in which disk tests of sensitivity do not provide adequate information to a physician in the management of therapeutic problems. Here the use of tube sensitivity tests, which allow for the testing of two or three antibiotics simultaneously, are of considerable value. Such tests are now readily available through most departments of microbiology of the medical schools of this state, and physicians should not

hesitate to call for help. It is likely that such simplified tests⁸ may be utilized by many other hospital laboratories.

It is well to add a word of caution regarding the use of the words "resistance" and "sensitivity" in clinical practice. These are, frankly, relative terms. "Resistance" generally means that the *usual* therapeutic doses are unlikely to materially affect the survival of the organisms present. On the other hand, there are many occasions when the use of huge doses of some antibiotic, chiefly penicillin, or combinations of antibiotics may lead to recovery because of the resultant very high drug levels obtained or because of antibiotic synergism.

University of California Hospital, San Francisco 22.

REFERENCES

1. Barber, M., Hayboe, F. G. J., and Whitehead, J. E. M.: Penicillin resistant staphylococcal infection in a maternity hospital, *Lancet*, 1:1120, Dec. 17, 1949.
2. Clarke, S. K. R., Dalgeish, P. G., and Gillespie, W. A.: Hospital cross infections with staphylococci resistant to several antibiotics, *Lancet*, 1:1132, June 7, 1952.
3. Dukes, C. D., and Dukes, A. M.: The Utilization of Multiple Resistance to Antibiotics as an Aid to Determining Cross Infection with *Staphylococcus Aureus*. Proc. Antibiotic Symposium (F. D. A.) Washington, D. C., 1953.
4. Finland, M.: Antibiotics and the staphylococci, *Antibiotic Medicine*, 1:3, Jan. 1955.
5. Forbes, G. B.: Infection with penicillin resistant staphylococci in hospital and general practice, *Brit. M. J.*, 2:569, Sept. 10, 1949.
6. Fusillo, M. H.: Roerig, R. N., and Ernst, K. F.: Phage typing the antibiotic-resistant staphylococci. IV. Incidence and phage type relationship of antibiotic-resistant staphylococci among hospital and nonhospital group, *Antibiotic & Chemo.*, 12:1202, Dec. 1954.
7. Hurst, V. M.: Personal communication to author. 1955.
8. Jawetz, E., Gunnison, J., and Kempe, C. H.: A laboratory test for bacterial sensitivity to combinations of antibiotics, *Am. J. Clin. Path.*, 25:1016, Sept. 1955.
9. Kempe, C. H.: The use of antibacterial agents, *Pediatrics*, 15:221, Feb. 1955.
10. Lepper, M. H., Dowling, H. F., Jackson, G. G., Moulton, B., Spies, H. W.: Effect of antibiotic usage in the hospital on the incidence of antibiotic-resistant strains among personnel carrying Staphylococci, *J. Lab. & Clin. Med.*, 42:832, Nov. 1953.
11. Lepper, M. H., Dowling, H. F., Jackson, G. G., and Hirsch, M. M.: Epidemiology of penicillin and aureomycin resistant staphylococci in a hospital population, *Arch. Int. Med.*, 92:44, July 1953.
12. Rountree, P. M., Barbour, R. G. H., and Thompson, E. F.: Incidence of penicillin resistant and streptomycin resistant staphylococci in a hospital, *Lancet*, 1:435, Feb. 24, 1951.
13. Rountree, P. M., and Barbour, R. G. H.: Staphylococcus pyogenes in newborn babies in a maternity hospital, *M. J. Aust.*, 1:525, April 1950.

Lateral Thoracic Radiographs

Evaluation of Their Use as a Routine Procedure In Roentgen Examination of the Chest

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ROENTGEN EXAMINATION of the chest in the lateral projection is a generally accepted procedure in selected abnormal cases. In evaluating a pathological process seen on the postero-anterior film of the chest, an additional lateral view is often made to obtain added information about the lesion. The need for an additional lateral film is also accepted by some radiologists in cases in which disease of the lung is strongly suspected but no abnormality is visible in the postero-anterior film.

There are certain basic anatomical facts which would indicate the value of the lateral film as a routine procedure. In the postero-anterior view a large portion of the posterior part of the lower lungs is hidden by the diaphragm, and on the left side a portion of the lung is covered by the heart. The mediastinum, spine and retrosternal area are obscured by superimposition. All these areas are separately visible on a lateral roentgenogram (Figure 1).

This concept of the value of the lateral view is by no means new. In 1928, Brown and Weiss¹ considered that lesions behind the heart that were missed on the postero-anterior view would be visible on the lateral view and that even if seen on the postero-anterior view the exact location and probable nature of a lesion might be better determined by the lateral projection. In 1930, Warfield² stated: "Obscure pathology in the base of either lung field is best studied in the lateral view. . . . Lesions behind the heart are practically always missed in the ordinary postero-anterior chest film." Although many investigators advocate the lateral roentgenogram as a special diagnostic procedure, so far as could be determined there is in the English literature no evaluation of its routine use.

In an attempt to make such an evaluation, the authors reviewed the films that had been taken in a thousand consecutive examinations of the chest. The patients were either ambulatory patients observed in clinic or patients in the hospital for whom x-ray films of the chest were requested. The examinations were divided into four classes: (1) Those in which

• A thousand cases of consecutive radiographic examinations of the chest, consisting of postero-anterior and left lateral views, were reviewed.

In seven cases (0.7 per cent) the lateral view revealed clinically significant lesions which were not seen on the postero-anterior view.

In 30 cases (3 per cent) the lateral view demonstrated clinically significant added information permitting more definite diagnosis.

Addition of the lateral view to the routine roentgen study of the chest gives a more thorough and complete examination at minimal expense and permits a more definite diagnosis in a significant number of cases.

there were clinically significant findings on the lateral view that were not seen at all on the postero-anterior film, were classified as 3 plus. (2) Those in which there was some indication of a lesion on postero-anterior film, but in which the lateral gave added information of definite clinical significance, were classified as 2 plus. (3) Those in which the lateral gave added anatomical information which was considered of no definite clinical significance were classified as 1 plus. (4) Those in which the lateral view gave no added information were classified as zero.

Specifically excluded from classification were incidental lesions of the chest wall, spine or mediastinum. A lateral film will demonstrate a pathological process of those areas, but since specific examina-

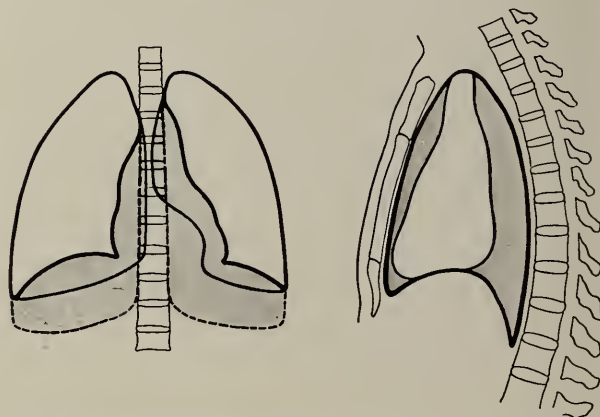


Figure 1.—Note that the shaded areas of the lungs would be visible only on the lateral view.

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tions to visualize them would probably be made when indicated, these incidental findings were not considered in evaluation of the lateral film as a routine procedure.

In the study it was noted that the appearance of the retrosternal anterior costophrenic sinus was extremely variable, which the authors are at present

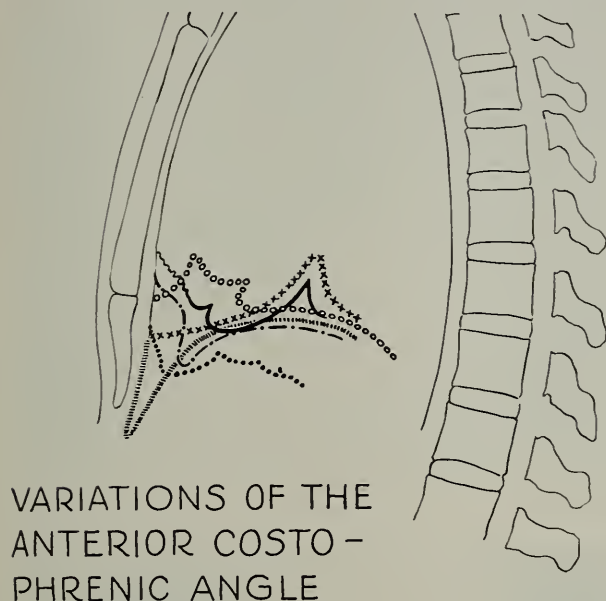


Figure 2.—The pleural reflection of the anterior costophrenic sinus varies greatly in clinically asymptomatic individuals. This figure shows a number of representative tracings.

unable to evaluate. Further radiological anatomical correlation seems necessary (Figure 2).

Seven of the thousand cases in the series (0.7 per cent) were in the 3 plus group. In three of the patients the lesion was obscured on the postero-anterior roentgenogram by the diaphragm (Figure 3). The side of involvement could be determined only by clinical evidence. In two other patients the heart covered the lesion on the postero-anterior film (Figure 4). In one patient the disease was hidden by the mediastinum or hilum, and in one a middle lobe consolidation was obscured on the postero-anterior film by the overlying breast.

(There were two additional cases in which definite radiological changes were seen on the lateral but not on the postero-anterior view. These cases are excluded from the classification because the histories were not available and, therefore, the significance of the shadows could not be determined.)

Thirty cases (3.0 per cent) were classified in the 2 plus group. The largest subgroup of these 2 plus cases was made up of cases in which a pathological process was suspected in the lung bases on the postero-anterior radiograph. A lateral view in this group served to show in some cases that there was no lesion and in other cases to demonstrate the lesion conclusively. Hazy shadows at the left base in two asymptomatic cases of this group were not present on the lateral view, which thereby diminished suspicion of a lesion. In a group of nine cases



Figure 3.—X-ray films of chest of woman 75 years of age. The lateral view shows a collection of fluid posterior to the dome of the diaphragm which obviously would not be visible on the postero-anterior view.

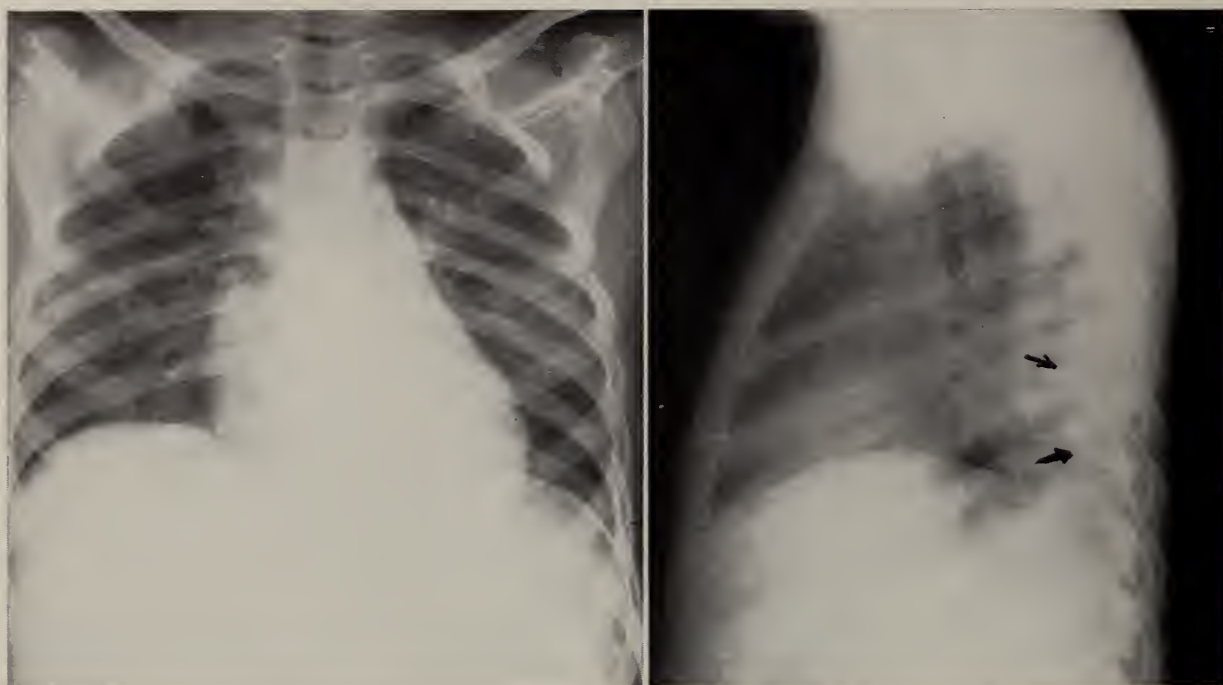


Figure 4.—X-ray films of chest of boy, aged 10 years. Posterior encapsulation of effusion seen on the lateral view only, probably hidden by the heart on the postero-anterior radiograph.

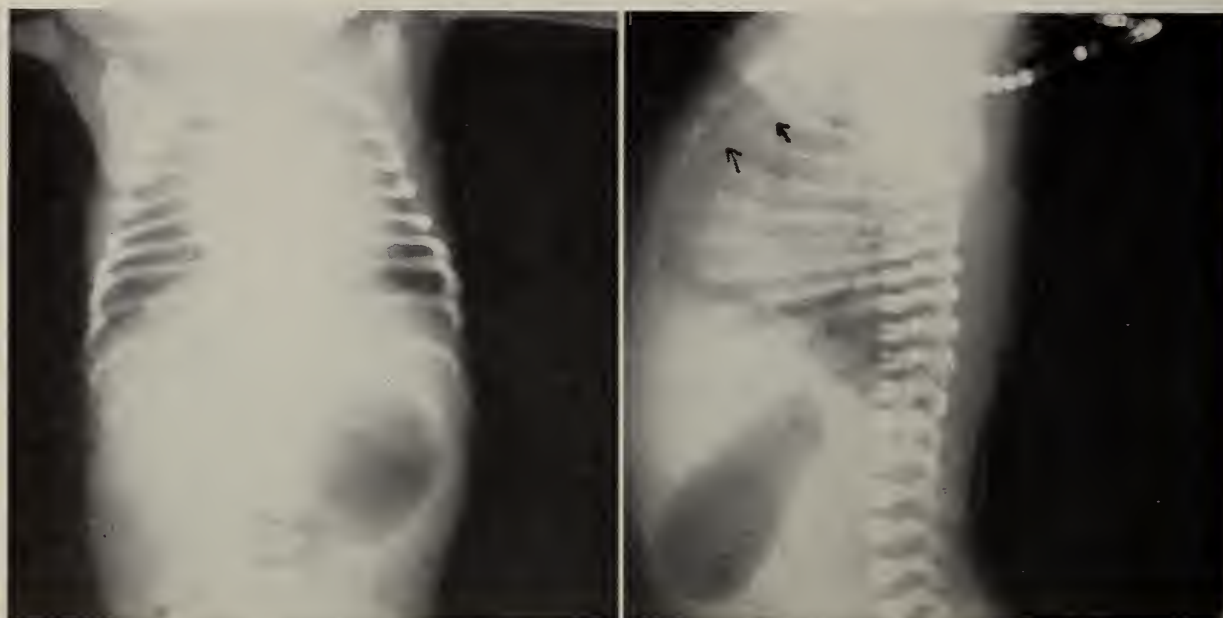


Figure 5.—X-ray films of chest of five-day-old boy. The atelectatic nature of the shadow in the right upper lobe is seen in the lateral view.

in which a basal shadow was demonstrated on the postero-anterior view, the lateral view showed the lesion much more definitely and in some instances suggested the nature of the lesion. In this group there were five cases of basal pneumonitis, three of bronchiectasis and one of pleural thickening.

The heart partially masked the pathological process in three cases—bronchiectasis in one case and pneumonitis in another; and the third case a greatly

enlarged heart obscured a small amount of pleural effusion. In two of these patients in early life a consolidation of the posterior basal segment of the left lower lobe was only seen on the postero-anterior chest film because of inadvertent overpenetration.

The authors have found the lateral view helpful in examination of patients with hilar prominence, especially when it is unilateral. In some of these cases a slight rotation of the patient's chest may account

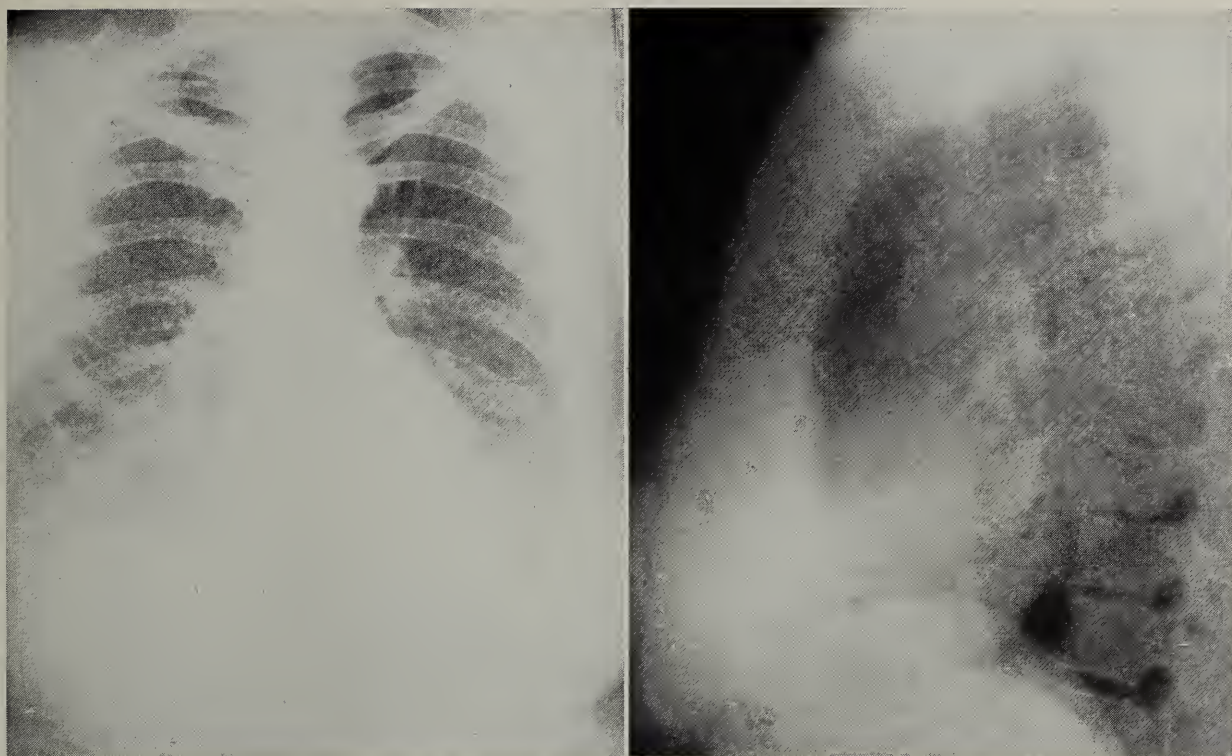


Figure 6.—X-ray films of chest of woman 43 years of age. The lung bases obscured in the postero-anterior view by the heavy breasts are demonstrated to be clear on the lateral projection.

for the unilateral prominence resembling bronchogenic carcinoma. The lateral view is frequently helpful in the anatomical evaluation of these changes. There were five such cases in the present series.

The rest of the 2 plus group had lesions in various areas of the lung. In all of these cases analysis of the lateral view permitted a more definite diagnosis, principally through the additional anatomical information as to whether the shadows were pulmonary or pleural and whether there was any interlobar pleural involvement.

There were two cases of pneumonia resembling fluid and one of pneumonia resembling a mediastinal mass. Three cases of encapsulated fluid and two of atelectasis resembled pneumonia (see Figure 5). In all of these the lateral view revealed the true nature of the lesion.

In one patient with pulmonary infarction the shadow was seen on the postero-anterior film but the characteristic triangular appearance with wide base on the interlobar pleura was seen only on the lateral view. Likewise, the lateral view demonstrated clearly, in a case of achalasia, the shadow of the widened esophagus located in the posterior mediastinum.

Forty-eight cases (4.8 per cent) were classified as 1 plus. In 35 of them the lateral view gave information on anatomical distribution of the pathological process which was not available on the postero-anterior view. In most of these cases the disease was

pneumonia, in several it was bronchiectasis and in a few cases tuberculosis and pleural disease.

In nine cases in the 1 plus group the lateral view demonstrated anatomical information which could not be obtained from the postero-anterior film. In most of these cases the lesion was thickened pleura. In one case of unusual interest the postero-anterior film showed calcification in the lower left lung field and the lateral view showed it to be actually in the breast. A large breast shadow obscured the lung base in four cases and the clearness of the lower lung as seen on the lateral film gave assurance that no underlying pathological process was missed (Figure 6).

The 0.7 per cent of cases classified in the 3 plus group may not appear impressive, but it must be considered that a pathological process was diagnosed in these cases through the addition of a single radiograph and without significant added effort or expense. This compares rather favorably with the yield of other routine diagnostic procedures.

As to the 2 plus group, which made up 3 per cent of the series, it is noteworthy that these patients were dismissed from the Department of Radiology with a rather complete radiological diagnosis and the need of recalling them for additional studies was avoided. It must be realized that the expense of recalling a patient is considerable and the effort is not always successful.

In many of the 48 cases (4.8 per cent) in the 1 plus group the distribution of the lesion was well demonstrated on the lateral view. Although knowledge of such distribution might be of no clinical significance in a disease like pneumonia, it would definitely be valuable in bronchiectasis.

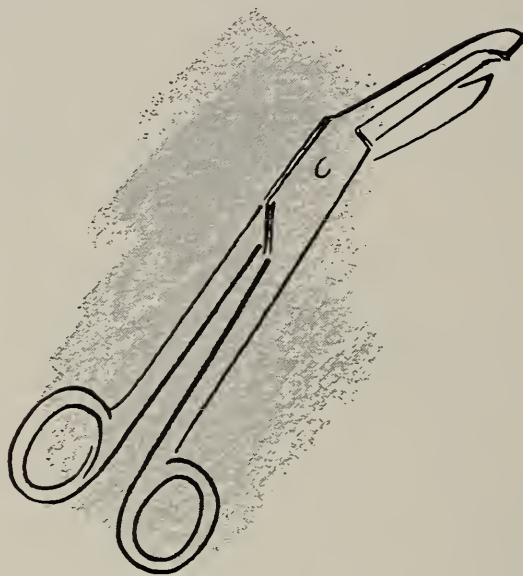
In evaluation of the series of 1,000 cases an attempt was made to avoid controversial diagnosis. In the opinion of some observers, the lateral view gives considerable information regarding chronic pulmonary emphysema. In recognition of the controversial nature of such an interpretation, it was avoided.

In considering the value of the routine lateral it must be remembered that roentgenographically the anatomy of the chest is relatively complex and the variations are considerable. To obtain the maximum information from a lateral view a thorough knowledge of these anatomical and pathological variations is necessary. The knowledge cannot be obtained without utilizing the lateral view routinely.

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REFERENCES

1. Brown, S., and Weiss, H. B.: The value of lateral views of the thorax, J.A.M.A., 90:187, Jan. 21, 1928.
2. Warfield, C. H.: The clinical and roentgenologist value of the lateral chest, Illinois Med. J., 58:461-463, Dec. 1930.



Hyperparathyroidism

Ordinary Diagnostic Procedures

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THIS PRESENTATION was prepared chiefly for urologists and others who, like the author, have found it necessary to review the entire problem of diagnosis of hyperparathyroidism. It is believed that with the accompanying outline and the short explanations following, the necessary steps for diagnosing that disease can be accomplished.

It is estimated that in the stone-forming areas, around 3 per cent of all persons with stones have associated hyperparathyroidism. When the diagnosis is made early and treatment is prompt, nearly always the patient is cured dramatically. The only problem is that all the complications of hyperparathyroidism are reversible except the permanent renal damage caused by calculi.

An outline of the various examinations and steps in diagnosis, and then a fuller discussion of each of the items in the outline, follow:

- I. *Elevation of serum calcium* (normal range: 9.5 to 10.5 mg. per 100 cc.).

If above 11.0 mg. per 100 cc., determination should be repeated two or three times.

Specimen should be taken while fasting. No special diet beforehand.

- II. *Inorganic phosphorus* (Normal: 3 to 4 mg. per 100 cc.).

If below 3 mg. per 100 cc., repeat two or three times.

Specimen taken while fasting. No special diet.

- III. *Ordinary qualitative Sulkowicz examination.*

Test should be done with specimen of urine voided between 7 a.m. and 8 a.m. with patient fasting but not on the first urine voided in the morning. Result of test should be "positive."

- IV. *Serum alkaline phosphatase.*

If elevated is significant (above 12 units by King-Armstrong method or above 4 units by Bodansky); but if normal does not rule out hyperparathyroidism. Elevation occurs only if bone disease is involved.

• **Step-by-step examination that follows an outline of necessary laboratory determinations and roentgen studies helps in the diagnosis of hyperparathyroidism, a disease that can almost always be cured if treatment is carried out in the early stages.**

- V. *Serum protein determination* (Normal: 6.0 to 8.0 gm. per 100 cc.).

This should be done (with the patient fasting) at the same time that serum calcium and phosphorus determinations are done, for interpretation.

- VI. *Renal Stone.*

If a stone is available and the analysis shows it to be other than calcium phosphate or calcium oxalate stones, the disease can practically be ruled out.

- VII. *Spinal fluid calcium determination* (Normal: 5 mg. per 100 cc.).

Of value only if above normal. Content of calcium (patient fasting) is not elevated in hyperparathyroidism.

- VIII. *Nonprotein nitrogen.* Test used to rule out secondary hyperparathyroidism of long standing in cases of renal hyperparathyroidism.

- IX. *Kidney-ureter-bladder roentgen examination.*

1. Renal calculi.
2. Nephrocalcinosis.

- X. *Skeletal long bone series of x-ray films.*

1. Recklinghausen's bone disease.
2. Generalized demineralization.
3. Soft tissue calcium deposits.

- XI. *Exploration.*

Even if there is only a suggestion of hyperparathyroidism after all the foregoing examinations are done, exploration should be carried out, for it is so simple and cure is so dramatic.

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XII. *Other things that are helpful and may be diagnostic.*

- A. X-ray film of chest for abnormal parathyroid glands.
- B. Calcium studies. (Albright showed that if calcium intake is restricted to a low level, the normal urinary output is cut to a low level. With hyperparathyroidism the urinary excretion will be high, the calcium coming from bone.)

Following are expanded discussions of the items in the foregoing outline.

I. Calcium

There are many things in which calcium plays an important role, as it is a constituent of all animal fluids and solid tissues. Some of the most important physical processes and conditions in which it is an essential are³: The coagulation of blood, formation of bone, cardiac rhythmicity, maintenance of normal neuromuscular excitability, milk production and membrane permeability.

Two per cent of the body weight and 99 per cent of the total skeletal quantity is calcium. The serum calcium is usually considered to be 9.5 to 10.5 mg. per 100 cc. All or practically all the calcium in the blood is contained in the plasma and after clotting it is all present in the serum. Of this recorded serum level, 45 per cent, or 4 to 5 mg. per 100 cc. of total serum calcium is nondiffusible. It is bound to the serum proteins, both albumin and globulin, but chiefly to the albumin in the proportion of 0.84 mg. per cent of protein. The remaining 55 per cent of the amount in the serum, or 5 to 6.5 mg. per 100 cc., is diffusible and nearly all of the diffusible portion is ionized.

The physiology of absorption and excretion is important in the fundamental background. Calcium is absorbed only in the inorganic state, chiefly in the small intestine (upper part). This absorption is facilitated when the bowel is acid, in the presence of sugars with their organic acids and in the presence of proteins. A large amount of fat reduces the absorption, due to the formation of insoluble soap. Excretion of this same calcium is largely in the small intestine and urine, with little or none through the colon. The amount found in the stool of a person who eats an ordinary mixed diet amounts to only 0.4 to 0.8 gm. per day. Part of that amount is endogenous, but most of it is unabsorbed calcium in food. A smaller quantity of calcium is excreted in the urine, usually about 110 mg. daily.

II. Phosphorus

Phosphorus exists in the blood in four main forms. The inorganic phosphorus is the one that is of im-

portance in the diagnosis of hyperparathyroidism. The others are the ester phosphorus, the lipid phosphorus and nucleic acid phosphorus. The greater proportion of the organic phosphorus is in the cells and the amount is many times greater than that of the inorganic phosphorus. The inorganic phosphorus is equally distributed between the cells and the plasma. The amount in the plasma is thought to be 3 to 4 mg. per 100 cc.

The important physiologic features with regard to phosphorus as related to hyperparathyroidism are: That in acidosis there is an increased excretion of phosphorus in the urine and a pronounced reduction of organic acid soluble phosphorus in the blood cells. In alkalosis the reverse is true. In renal failure the inorganic phosphorus in the plasma and cells, and the ester phosphate in the cells are greatly increased. This must be observed very carefully in the diagnosis of hyperparathyroidism with elevation of the non-protein nitrogen content.

III. Sulkowicz Examination of the Urine

It should be pointed out that this test² is not infallible and should be used as a gross examination. When the reaction is positive, a very careful analysis of the blood calcium and phosphorus should be done. The oxalate solution, when added to equal parts of urine, precipitates the calcium oxalate. The urine should be acid. Under normal conditions only a slight precipitation of calcium occurs. In hypercalciuria the precipitate is thick and milky, which usually indicates hypercalcemia—above 10.5 mg. per 100 cc. of blood.

A few precautions can be pointed out:

1. The test should not be done on the 7 a.m. urine. A specimen collected between 7 and 8 a.m., before the patient has eaten, should be used.
2. Even in normal persons the result of the Sulkowicz test will be positive after ingestion of foods rich in calcium, especially milk.
3. Even in patients with hypercalcemia, drinking large quantities of water, tea, coffee or other fluids may so dilute the urine that the result will be negative.

Albright pointed out that one of the real uses of this examination is for study of a patient with equivocal serum calcium and phosphorus levels. In such persons, if results of the Sulkowicz tests are persistently positive, further studies are indicated.

IV. Serum Alkaline Phosphatase

Serum phosphatase is an enzyme capable of liberating inorganic phosphorus from organic phosphorus compounds of the blood. The alkaline phosphatase content of the blood serum depends on (among other things) the activity of the osteoblasts.

In all bone diseases in which increased formation of new bone or proliferation of cartilage occurs, there must be hyperactivity of the osteoblasts and the phosphatase content of the blood is necessarily increased. Liver disease such as obstructive jaundice is also associated with high serum alkaline phosphatase.

In hyperparathyroidism the alkaline phosphatase content of the serum is increased only when the bones are involved.⁴ When renal calculi or nephrocalcinosis is the only manifestation of hyperparathyroidism, the alkaline phosphatase will not be elevated. It must be borne in mind that the alkaline phosphatase is elevated in any disease with increased bone repair, such as rickets, osteomalacia, Paget's disease, malignant metastasis, polyostotic fibrous dysplasia and (to some extent) multiple myeloma.

V. Serum Protein

The total serum protein is considered to be normal between 6.0 and 8.0 gm. per 100 cc.—4.3 to 5.0 gm. of it albumin and 1.1 to 3.1 gm. globulin.

The serum protein determination should be done at the same time as the calcium and phosphorus determinations are done and a fasting specimen should be used. The reason for doing this test is that 4.0 to 5.0 mg. per 100 cc. of the serum calcium is nondiffusible and is bound to the serum proteins, chiefly albumin. If blood protein were low, calcium content might appear to be normal even though hypercalcemia actually was present. For example: In chronic nephritis (without phosphate retention) the decline in the serum calcium roughly parallels the decline in plasma albumin and hypocalcemia is due mainly to a reduction in the nondiffusible fraction.

VI. Renal Stone

Since presumably the cause of calculi in hyperparathyroidism is hypercalciuria, the stones will be either calcium phosphate or calcium oxalate. The problems of alkaline urine due to infection from the calculus may add some magnesium-ammonium phosphate elements. If the stone does not fall into this chemical analysis, hyperparathyroidism is practically ruled out.

VII. Spinal Fluid

The spinal fluid calcium is nearly all protein-free and ionizable. The normal levels are considered to be 5 mg. per cent.

This examination is of value only if there is hypercalcemia. The spinal fluid calcium in the presence of hypercalcemia may be used to rule out hyperparathyroidism. According to Howard,⁵ in conditions not due to hyperparathyroidism the spinal fluid calcium is elevated, but in hyperparathyroidism

there is no elevation. Howard noted no instance of calcium content in the cerebrospinal fluid greater than 6.0 mg. per 100 cc. in hyperparathyroidism, which is lower than the calculated diffusible serum calcium, although he has observed it at higher levels in cases of vitamin D poisoning, multiple myeloma, Beck's sarcoid and metastatic carcinoma.

VIII. Nonprotein Nitrogen

Determining the blood nonprotein nitrogen is most important. When there is pronounced renal damage, one must make sure renal rickets is not the cause. In true hyperparathyroidism hypercalcemia is a constant sign, even with secondary renal failure. In secondary hyperparathyroidism the serum or urinary calcium is *never* increased, and the inorganic phosphorus is nearly always increased. Failure of closure of the epiphyseal disk is a sign nearly always present in renal osteodystrophy.

Albright¹ expressed the belief that the sequence of events is kidney insufficiency, phosphorus retention, tendency to low serum calcium level as an adjustment to high serum phosphorus level, and hyperplasia of the parathyroid glands to meet this tendency.

IX. Kidney-Bladder-Ureter Roentgenograms

A plain film of the abdomen should be taken in order to determine whether or not kidney stones or nephrocalcinosis are present.

X. Skeletal Long Bone Roentgen Studies

The things to look for are: Recklinghausen's bone disease, generalized demineralization and soft tissue calcium deposits.

XI. Other Things that are Helpful and may be Diagnostic

A. *X-ray film of chest.* From embryologic studies it is known that ectopic or supernumerary parathyroid glands occur rather frequently. In x-ray films it is important to look for parathyroids in the neck and in the mediastinum. Usually there are four parathyroids on the posterior surface of the thyroid. Sometimes there are only two to three, and occasionally as many as nine, in one patient.

It has been said that aberrant parathyroids are present in 10 to 15 per cent of cases. These may be found anywhere that the thymus gland develops. The thymus area extends from well above the thyroid to the site where the thymus ultimately comes to rest deep in the mediastinum.

Surgeons must look for parathyroids behind the thyroid gland, between the trachea and esophagus, behind the esophagus, on the anterior side of the spine, behind the clavicle, on the anterior and the

posterior side of the mediastinum and about the thyroid gland itself.

B. The neutral ash low calcium diet of Albright,⁷ which contains approximately 0.138 gm. of calcium and 0.4 gm. of phosphorus, is used in calcium excretion studies. Patients are given the diet for one week before the 24 hour specimens of urine for the test are obtained. With a restricted calcium intake, the urinary calcium level of normal persons is very low, but in hyperparathyroidism the urinary calcium continues at high levels. Urinary calcium of 150 mg. per day is considered suggestive, and 200 mg. or more per day is definitely high.

It does not help diagnostically to do a control test with the patient on a normal or a high calcium diet, for the result is significant only if calcium intake is low.

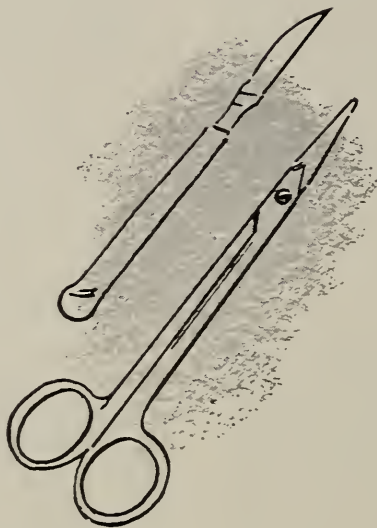
Extreme care must be taken with the low calcium diet. The intake must be carefully weighed and controlled. Most investigators⁴ recommend that it be done in controlled diet laboratories. It should be borne in mind that such little items as enteric-coated tablets may contain as high as 110 mg. of calcium, toothpowder as much as 35.9 gm. per 100

gm. of powder; and even that only distilled water be ingested during the period of preparation.

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REFERENCES

1. Albright, F., and Reifenstein, E. C.: *The Parathyroid Glands and Metabolic Bone Disease*, Williams & Wilkins, Baltimore, pp. 302-303, 1948.
2. Barney, J. D., and Sulkowitch, H. W.: Progress in the management of urinary calculi, *J. Urol.*, 37:746-762, June, 1937.
3. Best, C. H., and Taylor, N. B.: *Physiological Basis of Medical Practice*, 5th ed., Williams & Wilkins, Baltimore, 1950.
4. Conn, J.: Univ. of Michigan—Personal communication.
5. Gutman, A. B., Tyson, T. L., and Gutman, E. B.: Serum calcium, inorganic phosphorus, and phosphatase activity in hyperparathyroidism, Paget's disease, multiple myeloma and neoplastic disease of the bone, *Arch. Int. Med.*, 57:379-413, Feb. 1936.
6. Howard, J. E., Carey, R. A., Rubin, P. S., and Levine, M. D.: Diagnostic problems in patients with hypercalcemia, *Tr. A. Am. Physicians*, 62:264-269, 1949.
7. Reifenstein, E. C., Albright, F., and Wells, S. L.: The accumulation, interpretation, and presentation of data pertaining to metabolic balances, notably those of calcium phosphorus, and nitrogen, *J. Clin. Endocrinol.*, 5:367-395, Nov. 1945.



Tuberculous Bronchitis in Children

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WITHIN THE PAST FEW YEARS the bronchial complications of primary pulmonary tuberculosis have received increased attention. This is fortunate, for they are frequently the cause of delayed recovery and irreversible sequelae.

Tuberculosis of the bronchi in children takes one of two gross forms (1) deformity or angulation of a bronchus from pressure by adjacent tuberculous lymph nodes without intraluminal involvement, or (2) tuberculous granulation tissue within the lumen of a bronchus. Actually these seemingly unrelated forms are, as was emphasized by Gorgenyi-Gettche,² simply different stages of the same underlying disease process, and the pathogenesis may be summarized as follows: A tuberculous parabronchial lymph node enlarges and compresses the bronchus by extrinsic pressure. It then becomes adherent to the bronchial wall by inflammation. As the lymph node undergoes caseation, there is progression of disease through the bronchial wall. The submucosal tissues of the bronchus become edematous at the point of contact, and the overlying mucous membrane appears acutely inflamed. The mucous membrane becomes thinner as the lymph node continues to "point," and finally it ruptures. The pus or caseous debris discharges into the bronchial lumen at a varying rate. It may be so slow as to constitute an imperceptible leak or so rapid as to asphyxiate the child.

As the caseating lymph node empties, it becomes smaller, but tuberculous granulation tissue appears at the site of perforation and proliferates. It mushrooms into the bronchus and may appear as a solitary red granuloma filling the lumen like a small cherry, or the granulomatous process may extend along the bronchial wall until the mucous membrane of the entire circumference of the bronchus is replaced by this irregular friable, easily bleeding tissue.

Granulations may be limited to the main stem bronchus or they may protrude from the orifice of whatever branch bronchus is involved into the next larger and continue to extend proximally until the entire main stem bronchus is secondarily diseased. Such virtual obliteration of a bronchial lumen allows the retention of secretion and debris distal to the granuloma, thus setting in motion the train of events leading to atelectasis and ultimate bronchiectasis.

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• Of 63 children with primary pulmonary tuberculosis who were examined bronchoscopically without particular regard for the usual criteria for the procedure, 18 (28.5 per cent) had visible tuberculous bronchitis.

Certain endobronchial lesions resolved spontaneously, others responded to bronchoscopic treatment, and still others persisted despite all efforts.

X-ray observations and clinical signs were of limited value in determining prior to bronchoscopy which child would have visible bronchial disease.

Bronchoscopy is essential for both diagnosis and treatment of these lesions.

Tuberculous bronchitis should be suspected whenever a child who is being treated for pulmonary tuberculosis by conservative means does not improve.

While certain cases run the above described gamut, in most instances the disease process reverses itself at some stage and healing occurs. The problem clinically is to ascertain which child has endobronchial disease that is not undergoing spontaneous resolution.

PRESENT INVESTIGATION

This report is based on a series of 124 bronchoscopic examinations performed on 63 children with primary pulmonary tuberculosis. The only findings considered positive for tuberculous bronchitis were the presence of visible granulations, pronounced compression by external pressure and severe orificial inflammatory stenosis. Redness of the mucosa and the presence of purulent secretions were not considered evidence of specific disease and, although undoubtedly related to the underlying tuberculosis, were classified as not specific.

Eighteen of the 63 patients (28.5 per cent) were "positive" on the basis of the foregoing criteria. Fourteen of them had endobronchial granulations, two had stenosis from external pressure, and two had severe orificial inflammatory stenosis. Between the bronchoscopically positive and negative groups there was no significant difference with regard to average age (33 months compared with 29 months), sex, race, history of contact, positive cultures, patch test reaction, or physical findings. Likewise, x-ray films were of no help in differentiating the two groups. In the bronchoscopically positive group the x-ray films

suggested bronchial dysfunction in the form of atelectasis or emphysema in eight cases, but in six there was nothing but a confluent mass-like infiltrating lesion and in four there were only visibly enlarged lymph nodes. Thus in 55 per cent of the positive cases there was nothing roentgenographically observable to point specifically to the presence of endobronchial disease.

In the bronchoscopically negative group—45 patients—x-ray films showed 32 with mass-like confluent infiltrations, six with suggestion of atelectasis, two with emphysema, and five with enlarged lymph nodes only. The lack of correlation between x-ray findings and bronchoscopically visible endobronchitis was one of the most revealing features of this study. It was impossible from study of a particular x-ray film to predict with any degree of accuracy whether endobronchial disease would or would not be found on bronchoscopy.

Bronchoscopic examination proved the best means of determining the status of the tracheobronchial tree. In the early stages of this investigation, direct examination was limited to children having what appeared to be specific indications for bronchoscopy. It was quickly apparent that these were not adequate criteria, and indications were broadened until children were simply selected at random, the sole prerequisite being that they had active childhood pulmonary tuberculosis.

Bronchoscopy was performed in children as young as three months with no complications. There were no specific contraindications to the procedure. Children dyspneic from enlarged mediastinal glands and others recovering from tuberculous meningitis were bronchoscopically examined without ill effects. Ether was a most satisfactory anesthetic agent, allowing unhurried inspection of segmental orifices, and recovery was prompt.

Bronchoscopy is of prime importance, not only because of the information it yields but because there is no other way of treating certain endobronchial lesions. Laff and Lincoln,⁴ Daly,¹ and Rubin and Harris⁶ emphasized the futility of treating visibly obstructing endobronchial granulomas with chemotherapeutic agents alone. Most such lesions simply will not resolve. These granulations, together with caseous debris, act like foreign bodies, blocking bronchi and interfering with the escape of secretions. They must be managed like foreign bodies and bronchoscopically removed. This may be accomplished in several ways. Very often the suction tip will engage a plug of inspissated debris or will aspirate pieces of irregularly protruding friable granulation tissue. If this is not effective, forceps removal will be. Mosquito forceps are available which pass through bronchoscopes as small as 3.5 mm. in diameter. With these forceps a granuloma may be

removed in toto, piecemeal, or diffuse granulations may be morcellated for suction removal.

The sum total of this treatment is highly effective where the primary endobronchial disease is in a main stem bronchus. The most severe endobronchitis responds to it. With such bronchoscopic removal and aspiration at two-week intervals, in conjunction with adequate chemotherapy, the diseased main stem bronchus usually returns to normal, granulations disappear, the lumen becomes patent, and large quantities of pus are no longer aspirated. In some instances, while the mass of granulations resolves, the bronchial wall remains granular and the normal mucosa is not restored. The application of silver nitrate 30 per cent solution to these resistant areas hastens the resolution and return of the bronchial wall to normal appearance. Silver nitrate is admittedly of questionable value in tuberculous bronchitis in adults. It is more effective in children.

The great drawback to bronchoscopy is limitation of visibility. Inspection is confined to the trachea, main stem bronchi, the upper lobe and right middle lobe orifices, and the primary segmental orifices of the lower lobes. Endobronchial disease in the secondary and tertiary segmental branches cannot be visualized. Yet such disease occurs commonly³ and undoubtedly explains x-ray evidence of bronchial dysfunction even though nothing abnormal can be seen bronchoscopically or persistence of parenchymal disease when visible granulations are resolving. Furthermore, even when disease is bronchoscopically visible, it is not always possible to do anything about it. For example, a granuloma filling an upper lobe orifice cannot be reached. The author has observed children in whom such a granuloma, clearly filling the lumen, looked exactly the same one year after the initial direct examination. The endobronchial obstruction was observed in x-ray films, however, as a gradually increasing contractive process in the diseased lobe. Nevertheless, occasional bronchoscopic examination in these children is essential because endobronchial granulations have a tendency to extend along the bronchial wall into and up the main stem. In fact the most severe forms of endobronchitis occur in children in whom bronchoscopic examination was not performed until an initially small granuloma had mushroomed to the point where it involved the entire length of a main stem bronchus. If such essentially inaccessible granulomas are at least confined to the bronchus of origin by occasional removal of whatever can be reached through the bronchoscope, the most disabling form of this disease will be avoided.

A child must be followed bronchoscopically until no doubt remains about the complete resolution of visible endobronchitis. In one of the children in the present series a granuloma in the main stem bron-

chus had cleared, the x-ray films were normal, and the child was about to be discharged from the hospital. A final and what was considered to be a superfluous bronchoscopy was performed and a granuloma was seen to have reappeared and to be occupying more than half the lumen of the main bronchus. It had arisen from the previous site of origin on the medial wall about 0.5 cm. below the carina, and apparently represented recurrence of activity at the original point of rupture of a mediastinal lymph node into the main stem bronchus at this point.

It would appear that the most favorable form of endobronchial tuberculosis from the standpoint of prognosis is that associated with granulations arising at the point of rupture of a lymph node into a main stem bronchus. No matter how abundant the proliferation of granulations in this area, the primary source of the disease is bronchoscopically accessible, and distal granulomatous extensions are likely to resolve when the source is eliminated. Certain smaller bronchi which might seem to be specifically diseased are simply suffering from the effects of impaired ventilation and drainage and return promptly to normal when the granulomata proximal to them, which have been simulating a foreign body, are removed.

If, however, the granulations have their origin at the point of rupture of a diseased lymph node into a secondary or tertiary bronchus, the situation is different. The source of these granulations will not be bronchoscopically accessible, and although the main stem bronchus may be kept free of mushrooming granulations, the diseased branch bronchus itself cannot be reached and may remain filled with them indefinitely. It is in such circumstances that operation may be necessary.

Although tuberculous bronchitis occurs in children in whom there is no definite clinical or x-ray evidence of this complication, it is obviously not necessary that every child with primary pulmonary tuberculosis be examined bronchoscopically. A suppurating lymph node may rupture into a bronchus, set up a mild granulomatous reaction, and resolve spontaneously without giving recognizable evidence of bronchial dysfunction. On the other hand the com-

plication may be present in severe form with little or no specific indication of its presence.

What, then, are the criteria for bronchoscopic examination? Unequivocal indications include wheezing and x-ray evidence of atelectasis or obstructive emphysema. But these classical indications are not enough, for children can have severe endobronchial disease without them. The decision to perform bronchoscopic examination must be based on the total clinical picture. It is well known that on a satisfactory medical regimen, primary pulmonary tuberculosis runs a circumscribed course. Recovery will be more rapid in some cases than in others, but the overall picture is one of consistent improvement. If the clinical progress of a child under treatment is not entirely satisfactory and a change for the better is not evident, bronchoscopic examination should be performed. In this way no instance of visible bronchitis will be overlooked. Examples of deviation from an expected course include an unresolving infiltration as observed roentgenographically, extension of an existing infiltration, or appearance of a new one, and persistent lowgrade fever, cough, or gastric washings positive for acid-fast organisms.

Many children who otherwise would go month after month without improvement might be spared a protracted illness if endobronchial disease were recognized and treated.

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REFERENCES

1. Daly, J. F., Brown, D. S., Lincoln, E. M., and Wilking, V. N.: Endobronchial tuberculosis in children, *Dis. of the Chest*, 22:380, Oct. 1952.
2. Gorgenyi-Gottche, O., and Kassay, D.: Importance of bronchial rupture in tuberculosis of endothoracic lymph nodes, *Am. J. Dis. Child.*, 74:166, Aug. 1947.
3. Jones, E. M., Peck, W. M., Woodruff, C. E., and Willis, H. S.: Relationships between tuberculosis and bronchiectasis, *Am. Rev. Tb.*, 61:387, March 1950.
4. Laff, H. I., and Robinson, A.: Importance of bronchial involvement in primary tuberculosis of childhood, *J.A.M.A.*, 146:778, June 30, 1951.
5. Lincoln, E. M.: The effect of antimicrobial therapy on the prognosis of primary tuberculosis in children, *Am. Rev. of Tb.*, 69:682, May 1954.
6. Rubin, H. J., and Harris, M.: The role of bronchoscopy in tuberculosis of infancy and childhood, *Dis. of the Chest*, in press.

The Insecticides

Their Hazard in Industry and in the Home

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PART I. CHEMISTRY AND PHARMACOLOGY

TWO NEW CLASSES of insecticides, chlorinated hydrocarbons and organic phosphates, have come into wide usage in the past decade. Several reviews have been published on individual compounds of these series and on the groups themselves, but information necessary for proper use and knowledge of their detrimental effects on animals is difficult to obtain without perusal of the voluminous literature which has accumulated over the last several years.

The purpose of this paper is to attempt to correlate and coordinate the available information on the new insecticides. For this purpose the text has been divided into two main groups corresponding to the main chemical classification of the compounds and into subgroups covering the chemistry and principal pharmacological and toxicological effects of the various compounds in experimental animals.

THE CHLORINATED HYDROCARBON INSECTICIDES

Chemistry

The names of the chlorinated insecticides are given in Table 1. In general they are synthesized by chlorination of an aromatic hydrocarbon or by condensation of chlorinated intermediates to form the final compound. Analytical procedures for the isolation, identification and quantitative estimation of the various chlorinated insecticides are extremely varied.^{8, 17, 26, 36} Furthermore, a considerable knowledge of instrumentation is needed for a successful determination of microquantities of insecticide. All of these compounds are relatively insoluble in water, but the addition of wetting agents or adsorption on clays makes it possible to form emulsions or aqueous suspensions of them. They can also be dissolved in a variety of organic solvents, but inexpensive petroleum distillates are usually used for making solutions. Aerosols can be prepared from such solutions, using propellant gases to disperse the insecticide. Water insolubility and low volatility, except for

• Chemical, pharmacologic and toxicologic properties of the chlorinated hydrocarbon and organic phosphate insecticides have been reviewed. The chlorinated group present problems if there is either acute or chronic exposure, whereas the problems associated with the organic phosphates develop only in event of acute exposure.

Chlorinated hydrocarbon insecticides accumulate in body fat depots and cause both liver and kidney damage while being metabolized and excreted. Organic phosphates destroy cholinesterase and produce effects related to overstimulation of the cholinergic branch of the autonomic nervous system. Barbiturates control the convulsions produced by the chlorinated hydrocarbon insecticides. Atropine blocks most of the effects of the organic phosphate insecticides. These compounds may be grouped in the following order of decreasing toxicity: TEPP, HETP, parathion, OMPA, ENP, aldrin, dieldrin, chlorophenothane, toxaphene, gamma benzene hexachloride, malathion and chlordane.

Lindane,[®] accounts for the persistent effects of these compounds. They are relatively stable under ordinary conditions but break down in the presence of alkali. Aldrin and dieldrin are exceptions, in that under conditions of practical use neither acid nor alkali causes chemical decomposition.⁴⁶

Availability and Utility

The chlorinated insecticides are available in the following forms: (1) Oil solutions in mineral oil or organic solvents such as kerosene; (2) emulsion concentrates which are diluted with water prior to use; (3) powders, incorporated into suitable dry carriers for application as dusts, or modified by the addition of wetting agents into a wettable powder which is mixed with water for spraying; (4) aerosols in oils for dispersion, as mists and fogs; and (5) coverings in paints, polishes and waxes. The concentrations vary from 1 to 75 per cent depending upon the use and type of formulation.

Uses include contact insecticide, pesticide on livestock, larvacide for mosquitoes, and control of insect vectors of epidemic diseases (malaria, typhus, etc.). Chlorophenothane is also used as a pediculicide and

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TABLE 1.—Common, Chemical and Trade Names of Chlorinated Insecticides

Common Name	Chemical Name	Trade Name
Chlorophenothane	1,1,1-trichloro-2,2-bis (p-chlorophenyl) ethane	DDT, Dicophane
Methoxychlor	1,1,1-trichloro-2,2-bis (p-methoxyphenyl) ethane	Marlate, DMDT
Gamma benzene hexachloride	Gamma isomer of 1,2,3,4,5,6-hexachlorocyclohexane	Hexacid, Lindane, GBH, BHC, Gexane, Kwell, Sarcoptan
Toxaphene	Chlorinated camphene (67-69 per cent chlorine)	Phenatox, Penphene, Phenacide, Toxakil, Chlorphene, Kilphene
Chlordane	1,2,4,5,5,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methano-indane	Chlordan, Octaklor, Velsicol 1068
Aldrin	1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8-dimethano-naphthalene	Octalene
Dieldrin	1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4,5,8-dimethano-naphthalene	Octalox

BHC® as a scabicide. None of these compounds should be used on edible portions of green foodstuffs or in dairy barns when they might contaminate milk and milk products.

Pharmacological Actions

The principal pharmacological action of chlorophenothane centers in the cerebellum and the higher motor cortex. There is an alteration in cerebellar activity due to excitation of the afferent pathways. Present knowledge strongly suggests that no enzyme system is involved in this action of the compound. Judah⁴¹ observed no inhibition of anaerobic glycolysis with brain cortex although chlorophenothane did inhibit the process in rat liver and diaphragm. Johnston⁹ observed inhibition of rat heart cytochrome oxidase. The compound accelerated aerobic respiration of rat diaphragm and brain cortex but it had no effect on phosphorylation.⁴¹ The central nervous system disturbances are characterized by hyperexcitability, generalized tremors, spastic or flaccid paralysis and convulsions. The spinal cord, myoneural junction and muscles are not involved in the convulsions. Philips, Gilman and Crescitilli⁵¹ observed typical convulsive episodes in the electroencephalogram of curarized animals after injection of chlorophenothane. Destroying the brain in frogs that had a typical convulsive seizure from chlorophenothane stopped the convulsions, and transection of the spinal cord prior to giving the compound prevented their occurring. Sensitization of the myocardium to extrinsic or intrinsic epinephrine is produced by chlorophenothane and ventricular fibrillation results. Philips and co-workers⁵⁰ showed that the compound produces ventricular fibrillation by increasing sympathetic discharge through stimulation of the hypothalamic centers and by direct sensitization of the myocardium. It appears that the trichloroethane portion of the molecule is the sensitizing agent.

Methoxychlor is similar to chlorophenothane, producing the same kind of convulsions and other pharmacological effects. However, its general pharmacologic aspects have not been as widely investigated.

Gamma benzene hexachloride causes hyperexcitability of the central nervous system, convulsions and lack of muscular coordination. The purified product, Lindane,[®] acts within 30 minutes and its effects last for 24 hours. The technical product acts in one to two hours but the effects persist for as long as four days. This delayed activity is probably related to the presence of the alpha, beta and delta isomers in the technical mixture. The delta isomer counteracts the gamma one through its central depressant action. Intermediate effects are produced by the other isomers. The convulsive action has been thoroughly studied by Dallemagne and co-workers.^{15, 16, 48, 49} They showed that clonic convulsions of central origin were often accompanied by hyperpotassemia with no change in blood calcium. Furthermore, phenobarbital stopped convulsions which could not be prevented by chloralosane or ether anesthesia. However, curarization prevented both the convulsions and the increased blood potassium. Dallemagne and co-workers¹⁶ expressed belief that the gamma isomer's central effects involve the activity of cholinesterase but in vitro studies indicated that the compound had no effect on pseudocholinesterase.

Toxaphene is a general convulsant causing stimulation of the brain and spinal cord. Both clonic and tetanic convulsions are produced. Medullary excitation is evident in salivation, emesis and reflex excitability to sound. Furthermore, an abrupt vasopressor response to intravenous toxaphene in curarized animals, indicates stimulation of the vasomotor centers. This response is not seen after oral doses, probably because of incomplete absorption. Terminal epileptiform convulsions ending in respiratory failure are characteristic effects of this insecticide. All the foregoing symptoms can be related to the chemi-

TABLE 2.—General Pharmacological Effects of Chlorinated Insecticides

Insecticide	Local Effects	Predominant Effects	Pathological Effects	Sites of Storage, Metabolism and Excretion
Chlorophenothane	None	Hyperexcitability; stimulation of cerebellum and higher motor cortex; tonic convulsions; ventricular fibrillation.	Centrolobular necrosis of liver and fatty degeneration of renal tubules, changes in brain and spinal cord.	Body fat; metabolized in liver; excreted in feces, urine and milk.
Methoxychlor	Slight irritation	Hyperexcitability; stimulation of cerebellum and higher motor cortex; tonic convulsions.	Similar to but less extensive than chlorophenothane.	Unknown
Gamma benzene hexachloride	Irritation	Hyperexcitability; clonic convulsions; hyperirritability to external stimuli.	Changes in liver, bone marrow, lymphoid tissues, adrenal cortex and cerebrum.	Body fat; metabolized in liver; excreted in urine.
Toxaphene	Irritation	Hyperexcitability; clonic and tonic convulsions; epileptiform seizures; hyperirritability to sound.	Reversible hydropic degeneration of renal tubules, centrolobular necrosis of liver.	Body fat; metabolized in liver; excreted in urine and milk.
Chlordane	Irritation	Hyperexcitability followed by depression; tonic convulsions; Cheyne-Stokes respiration; hyperirritability to sound.	Brain and spinal cord congestion, petechial hemorrhages in intestine peripheral and midzonal necrosis of liver.	Body fat; metabolized in liver; excreted in urine.
Aldrin	Irritation	Hyperexcitability; tonic convulsions.	Not extensively studied, probably like dieldrin.	Body fat. (other data unknown)
Dieldrin	Irritation	Hyperexcitability; tonic convulsions.	Probably liver and kidney damage.	Body fat. (other data unknown)

cal nature of the compound. The primary effects resemble those of chlorophenothane and the secondary ones those of camphor. Phenobarbital successfully antagonizes both convulsive effects.¹² Little is known concerning the effect of toxaphene on body enzymes.

Chlordane resembles chlorophenothane in its pharmacological effects and similar convulsions are observed. It also produces an increased susceptibility to audiogenic seizures resulting in death by respiratory failure.³⁰ Stohlman and Smith⁵² reported that chlordane had little effect on blood pressure, and it caused respiration of Cheyne-Stokes type. Mild or moderate tremors, which became severe during the apnea of the Cheyne-Stokes cycle, were also observed. Giving barbiturates intravenously abated the convulsive effects of chlordane.

Aldrin and dieldrin produce pharmacological effects similar to those seen with chlorophenothane. No information is available concerning their effects on enzyme systems.⁴⁵

The general effects of the chlorinated insecticides are listed in Table 2.

Sites of Absorption, Deposition, Metabolism and Excretion

All the chlorinated insecticides are absorbed via the gastrointestinal tract, the pulmonary passages and the skin. With the possible exception of methoxychlor, they are all stored in body fat and in the fat depots in the internal organs.⁹

Chlorophenothane is partially metabolized to di(p-chlorophenyl) acetic acid by the liver. It is ex-

creted unchanged in the milk and feces, and as an unknown metabolite in the bile and as di(p-chlorophenyl) in the urine.¹⁰

Methoxychlor is rapidly metabolized, but its metabolites have not been completely identified.

Gamma benzene hexachloride is partially destroyed in the liver and excreted by the kidneys, but specific information on the fate of this compound is lacking.¹¹

Toxaphene is partially metabolized in the liver and excreted in the urine as ethereal sulfate and glucuronate conjugates. It is also excreted in milk.¹²

Chlordane is apparently metabolized to a water-soluble compound by the liver and excreted in the urine. More information would be desirable on the fate of this agent.^{1, 52}

Little is known concerning the metabolic fate of aldrin and dieldrin, but it has been stated that the former is not excreted in milk⁴⁶ while the latter is.⁵

Toxicological Effects

Acute and chronic toxicity of chlorophenothane has been studied in a large number of animal species both wild and domesticated.^{18, 20, 27, 41, 50, 51, 53} General symptoms of acute toxicity include generalized tremors, increasing in intensity and in muscle groups involved, tonic convulsions resembling those seen after strychnine, sensitivity to mechanical stimuli and death by either respiratory failure or ventricular fibrillation. The lethal dose (for 50 per cent of subjects) by various routes of administration in various animal species varies considerably depending upon the solubilizing agent used as well as rate of and

quantity absorbed. Pathological changes in acute poisoning consist of liver and kidney damage. Symptoms of chronic toxicity include anorexia, loss of weight, mild anemia, muscular weakness, nervous system irritability, convulsive seizures, coma and death. Chronic toxicity causes the following pathological changes: Centrolobular necrosis of the liver, fatty degeneration of the tubular epithelium of the kidneys, focal necrosis of cardiac and voluntary muscles and central nervous system changes, involving vacuolization around the large nerve cells in the spinal cord and cerebral motor nuclei and lesions in the roof and dentate nuclei of the cerebellum. Continuous exposure to small doses of chlorophenothane causes the liver and kidney lesions while exposure to large doses results in the central nervous system lesions. However, there is not a sharp line of demarcation because this insecticide is a cumulative poison.

Symptoms of acute and chronic toxicity from methoxychlor are similar to those caused by chlorophenothane, but chronic effects are much less extensive because of rapid breakdown of the compound.⁹

Numerous investigations^{11, 16, 22, 28, 31, 47, 48} have been made of the acute and chronic toxicity from gamma benzene hexachloride. Symptoms of acute toxicity include excitation, micturition, intermittent muscular spasms, loss of equilibrium, clonic-tonic convulsions, collapse and death. Pathological changes from acute exposure include gastrointestinal distention, rupture of the stomach, congested edematous lungs, dark fluid blood, distended liver of bluish or blackish color with patches of necrosis, contracted dark spleen, and a pale soft brain, mottled with petechial hemorrhages. Chronic toxicity in dogs produces mild changes in the liver, bone marrow, lymphoid tissues, adrenal cortex and cerebrum.²

Symptoms of acute toxicity from toxaphene include salivation, emesis, intermittent muscular spasms, convulsions and death. Gross pathological changes are uncommon. Symptoms of chronic toxicity are similar. Pathological changes include reversible hydropic degeneration of the renal tubules and a centrolobular hypertrophy which progresses to central necrosis and reparative hypertrophy.^{12, 42, 43}

Symptoms of acute toxicity from chlordane are generalized muscular tremors, Cheyne-Stokes respiration and clonic-tonic convulsions.⁵² Pathological changes are usually not seen after acute lethal doses.¹ Chronic exposure of sheep and goats to chlordane resulted in optic nerve or optic center impairment, ataxia, convulsions and coma. Pathological changes included congestion of the brain and spinal cord, frequent subserosal petechial hemorrhages on the antimesenteric border of the small intestine, peripheral and midzonal necrosis of the liver, and occasional variable lesions of the kidney, stomach and

TABLE 3.—Comparison of Acute Oral Toxic Doses in the Rat

Insecticide	Oral LD ₅₀ (Mg. per Kg. of Body Weight)	Reference
Chlorophenothane	115	2
Chlordane	590	1
Toxaphene	120	2
Gamma benzene hexachloride.....	125	2
Aldrin	40 to 50	46
Dieldrin	50 to 55	46
HETP	1.9	29
TEPP	1.4	14
ENP	M 33 F 6.7	21
OMPA	M 9.7 F 10	24
Parathion	M 5 F 1.75	37
Malathion	M 369 F 739	38

LD₅₀ = lethal dose for 50 per cent of subjects.
M = males. F = females.

heart.² Ambrose and co-workers¹ found some pathologic changes in the liver of rats, and Ingle³⁹ reported that chlordane produced changes similar to those seen after chlorophenothane but that pulmonary damage was more pronounced with chlordane.

Little information is available on the acute and chronic toxicological effects of aldrin, but the compound is more toxic than chlordane and from its chemical nature should cause liver and kidney damage.⁴⁵ Dieldrin causes the following acute symptoms in rabbits: Excessive salivation, grinding of the teeth, rolling of the eyes, muscular twitching and convulsions. Pathological studies were not reported, but the compound was concentrated in the liver and kidneys.⁵

A summary of the pathological changes produced by these compounds is given in Table 2. Comparative lethal doses are given in Table 3.

THE ORGANIC PHOSPHATE INSECTICIDES

Chemistry

The organic phosphate insecticides (Table 4) can be prepared by several synthetic procedures involving various phosphoric acid esters. Hall³⁴ recently reviewed the procedures used and the yields obtained. Analytical procedures are available for determination of microquantities of these compounds.^{7, 25, 33, 34, 40, 54} HETP (hexaethyl tetraphosphate) and TEPP (tetraethyl pyrophosphate) are relatively unstable in the presence of moisture while compounds of the parathion type are relatively stable under such conditions. These compounds decompose in the presence of alkali. They are soluble in a large variety of organic solvents but insoluble in petroleum ether, kerosene and light spraying oils.

Availability and Utility

With the exception of oil solutions, these compounds are generally supplied in the same type of formulations as the chlorinated insecticides. They

TABLE 4.—Common, Chemical and Trade Names of Organic Phosphate Insecticides

Common Name	Chemical Name	Trade Name
HETP	Hexaethyl tetraphosphate	Bladan
TEPP	Tetraethyl pyrophosphate	
ENP	Ethyl p-nitrophenyl thionobenzenephosphonate	
OMPA	Octamethyl pyrophosphoramidate	Pestox III
Parathion	p-nitrophenyl diethyl thionophosphate	E 605, Thiophos 3422, Niran, Alkron
Malathion	0,0-dimethyl dithiophosphate of diethyl mercaptosuccinate	4049, Malathion

are used as economic insecticides, pesticides and fumigants on foodstuffs but not for the control of insects attacking man or animals or for control of household insects.

Pharmacologic Actions

The primary site of action of the organic phosphate insecticides is on cholinesterase. This produces the condition of profound stimulation of the cholinergic branch of the autonomic nervous system. All of these agents destroy plasma cholinesterase (pseudo Ch E) and erythrocyte cholinesterase (true Ch E). Plasma esterase regenerates more rapidly. The first signs of cholinesterase inhibition, both pseudo and true, have been demonstrated in experimental animals 15 minutes after injection prior to the appearance of any objective symptoms. Diminution of brain Ch E activity can also be demonstrated at this time. Symptoms appear when erythrocyte Ch E activity decreases to 25 to 50 per cent of normal and at death the value is usually 10 per cent or less. Often no blood Ch E activity can be demonstrated, but animals have survived under such conditions.

This points out the importance of tissue cholinesterase. After one to two days at this low level, both esterases begin to return to normal. It is known that pseudo Ch E originates in the liver and it returns to normal levels more rapidly than true Ch E, whose origin is unknown. Erythrocyte Ch E activity regenerates at a rate of about 1 per cent per day. These phosphate compounds are true cumulative poisons in that exposure to minute quantities results in a progressively increasing Ch E inhibition. Furthermore, animals are very susceptible to these compounds during recovery from such exposures.

HETP and TEPP, because of their rapidity of decomposition, do not have the above mentioned cumulative action. The pharmacological effects produced in animals are related to the presence of excess acetylcholine and can to some extent be prevented or blocked by atropine. The action of acetylcholine is separated into its various components in the order of their appearance, muscarinic effects (simulation of the action of the alkaloid, muscarine), nicotinic effects (simulation of the action of nicotine) and curare-like paralysis of the myoneural junction. Muscarinic effects include tachypnea, bradycardia, miosis, defecation, urination, lacrimation and salivation. Nicotinic effects include generalized muscular fibrillations, body twitching, and tonic and clonic convulsions. The respiratory failure appears to be related to a curare-like paralysis of the myoneural junction of the diaphragm.^{19, 21, 23, 24, 29, 32, 35, 37, 38, 44} A vasopressor response is often seen with HETP and TEPP but not with OMPA (octamethyl pyrophosphoramidate), parathion or malathion.^{24, 37, 38}

Sites of Absorption, Deposition, Metabolism and Excretion

All these phosphate compounds are absorbed via the gastrointestinal tract, the pulmonary passages and the skin. No deposition in body tissues occurs. HETP and TEPP are rapidly hydrolyzed in the body and excreted as unknown nontoxic compounds.¹⁴ OMPA is known to be converted to a potent anticholinesterase only after enzymatic conversion in the liver but its excretion has not been studied.²⁴ ENP (ethyl p-nitrophenyl thionobenzenephosphonate) requires further work on these phases of the problem. Parathion is converted into p-nitrophenol and p-aminophenol in the body and it is also possible that p-nitrosophenol and hydroxyphenyl-hydroxylamine are formed.³² The fate of malathion is not known.

Toxicological Effects

Toxicity depends on the route of absorption and the vehicle in which the organic phosphate is mixed. These agents are much more toxic to females than to males. The following acute symptoms are observed in both sexes: Increased respiratory rate, lack of coordination, muscular twitching, miosis, defecation, urination, lacrimation, salivation, clonic and tonic convulsions and death by respiratory paralysis. Tissue accumulation is so slight that no evidence of

TABLE 5.—General Pharmacological Effects of Phosphate Insecticides

Effect on Enzymes	Predominant Effects	Local Effects	Pathological Effects	Sites of Storage, Metabolism and Excretion
Destroys cholinesterase	Lacrimation, salivation, miosis, emesis, bronchoconstriction, muscular tremors, bradycardia, collapse and death.	Irritation	None	No real tissue storage. Either destroyed by hydrolysis or converted to p-nitrophenol derivatives and excreted in urine.

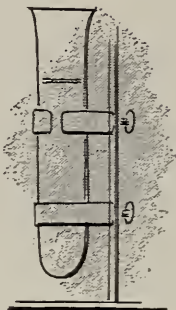
pathological changes in body tissue has been observed even in chronic feeding studies covering periods up to two years^{21, 23, 24, 29, 32, 35, 37, 38, 44, 45} However, such studies did indicate a progressive decrease in cholinesterase.

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REFERENCES

1. Ambrose, A. M., Christensen, H. E., Robbins, D. J., and Rather, L. J.: Toxicological and pharmacological studies on chlordane, A.M.A. Arch. Ind. Hyg. Occup. Med., 7:197-210, 1953.
2. Andrews, J. M., and Simmons, S. W.: Developments in the use of the newer organic insecticides of public health importance, Am. J. Pub. Health, 38:613-631, 1948.
3. Bowen, C. V., and Edwards, F. I., Jr.: Polarographic determination of 0, 0-diethyl 0-p-nitrophenyl thiophosphate (Parathion), Adv. Chem. Series, Agricultural Control Chemicals, American Chemical Society, Vol. 1, 1950, pp. 198-201.
4. Brauer, R. W.: Inhibition of the cholinesterase activity of human blood plasma and erythrocyte stromata by alkylated phosphorus compounds, J. Pharm. Exper. Therap., 92:162-172, 1948.
5. Bundren, J., Howell, D. E., and Heller, V. G.: Absorption and toxicity of dieldrin, Proc. Soc. Exp. Biol. Med., 79:236-238, 1952.
6. Burgen, A. S. V., Keele, C. A., Chennells, M., del Castillo, J., Floyd, W. F., Slome, D., and Wright, S.: Physiological effects of alkyl polyphosphates, Nature, 160:760, 1947.
7. Cassaday, J. T., Fletcher, J. H., Hamilton, J. C., Hechenbleikner, I., Hoeberg, E. I., Sertl, B. J., and Thurston, J. T.: Synthesis and development of parathion and related compounds, Adv. Chem. Series, Agricultural Control Chemicals, American Chemical Society, Vol. 1, 1950, pp. 143-149.
8. Carter, R. H., Nelson, R. H., and Gersdorff, W. A.: Organic-chlorine determinations as a measure of insecticide residues in agricultural products, Adv. Chem. Series, Agricultural Control Chemicals, American Chemical Society, Vol. 1, 1950, pp. 271-273.
9. Council on Pharmacy and Chemistry, Insecticide storage in adipose tissue, J.A.M.A., 145:735-736, 1951.
10. Ibid, Pharmacologic and toxicologic aspects of DDT (Chlorophenothane) U.S.P., J.A.M.A., 145:728-733, 1951.
11. Ibid, Toxic effects of technical benzene hexachloride and its principal isomers, J.A.M.A., 147:571-574, 1951.
12. Ibid, Pharmacologic properties of Toxaphene, a chlorinated hydrocarbon insecticide, J.A.M.A., 149:1135-1137, 1952.
13. Ibid, Use and abuse of generic (coined common) names for pesticides, J.A.M.A., 152:818-821, 1953.
14. Ibid, Pharmacology and toxicology of certain organic phosphorus insecticides. General description of their activity and usefulness, J.A.M.A., 144:104-108, 1050.
15. Dallemagne, M. J., Philippot, E., et Gernay, J. M.: Recherches sur le mecanisme de l'action centrale de l'hexachlorocyclohexane et de la dibenzylmethylaniline chez les animaux superieurs, Experientia, 4:1-2, 1948.
16. Ibid, Recherches sur la toxicite de l'hexachlorocyclohexane, Arch. int. Pharmacodyn., 76:274-296, 1948.
17. Danish, A. A., and Lidov, R. E.: Colorimetric method for estimating small amounts of aldrin, Adv. Chem. Series, Agricultural Control Chemicals, American Chemical Society, Vol. 1, 1950, pp. 190-197.
18. Davidow, B., and Frawley, J. P.: Tissue distribution, accumulation and elimination of the isomers of benzene hexachloride, Proc. Soc. Exp. Biol. Med., 76:780-783, 1951.
19. Dayrit, C., Manry, C. H., and Seever, M. H.: On the pharmacology of hexaethyl tetraphosphate, J. Pharm. Exper. Therap., 92:173-186, 1948.
20. De Witt, J. B., Derby, J. V., Jr., and Mangan, G. F., Jr.: DDT vs. wildlife. Relationship between quantities ingested, toxic effects and tissue storage, J. Amer. Pharm. Assoc., Sci. Ed., 44:22-24, 1955.
21. De Stefano, V., Hurwitz, L., Neuman, W. F., and Hodge, H. C.: Coramine (Nikethamide) as adjuvant to atropine in treatment of poisoning by EPN (ethyl p-nitrophenyl thionobenzenephosphonate), Proc. Soc. Exp. Biol. Med., 78:712-713, 1951.
22. Doisy, E. A., Jr., and Bocklage, B. C.: Chronic toxicity of gamma isomer of hexachlorocyclohexane in the albino rat, Proc. Soc. Exp. Biol. Med., 71:490-493, 1949.
23. DuBois, K. P., Doull, J., Salerno, P. R., and Coon, J. M.: Studies on the toxicity and mechanism of action of p-nitrophenyl diethyl thionophosphate (Parathion), J. Pharm. Exper. Therap., 95:79-91, 1949.
24. DuBois, K. P., Doull, J., and Coon, J. M.: Studies on the toxicity and pharmacological action of octamethyl pyrophosphoramide (OMPA; Pestox III), J. Pharm. Exper. Therap., 99:376-393, 1950.
25. Dvornikoff, M. N., and Morrill, H. L.: Determination of tetraethyl pyrophosphate in mixtures of ethyl phosphate esters, Anal. Chem., 20:935-936, 1948.
26. Fairing, J. D., and Warrington, H. P., Jr.: Colorimetric determination of small quantities of 1,1,1-trichloro-2,2-bis (p-methoxyphenyl) ethane, Adv. Chem. Series, Agricultural Control Chemicals, American Chemical Society, Vol. 1, 1950, pp. 260-265.
27. Fitzhugh, O. G.: Use of DDT insecticides on food products, Ind. Eng. Chem., 40:704-705, 1948.
28. Fitzhugh, O. G., Nelson, A. A., and Frawley, J. P.: The chronic toxicity of technical benzene hexachloride and its alpha, beta and gamma isomers, J. Pharm. Exper. Therap., 100:59-60, 1950.
29. Forssling, S.: Contributions to the toxicology and pharmacology of hexa-ethyltetraphosphate (HTP), Acta Pharmacol. Toxicol., 4:143-154, 1948.
30. Frings, H., and O'Tousa, J. E.: Toxicity to mice of chlordane vapor and solutions administered cutaneously, Science, 111:658-660, 1950.
31. Furman, D. P.: Toxicity of benzene hexachloride to mammals, J. Econ. Ent., 40:518-521, 1947.
32. Gardocki, J. F., and Hazleton, L. W.: Urinary excretion of the metabolic products of parathion following its intravenous injection, J. Amer. Pharm. Assoc., Sci. Ed., 40:491-494, 1951.
33. Hall, S. A., and Jacobson, M.: Hexaethyl tetraphosphate and tetraethyl pyrophosphate, Ind. Eng. Chem., 40:694-699, 1948.
34. Hall, S. A.: Organic phosphorus insecticides, Adv. Chem. Series, Agricultural Control Chemicals, American Chemical Society, Vol. 1, 1950, pp. 150-159.
35. Hamblin, D. O., and Golz, H. H.: Parathion poisoning—a brief review, Ind. Med. Surg., 24:65-72, 1955.
36. Harris, T. H.: Partition chromatography in analysis of insecticide formulations, Adv. Chem. Series, Agricultural Control Chemicals, American Chemical Society, Vol. 1, 1950, pp. 266-270.
37. Hazleton, L. W., and Holland, E. G.: Pharmacology and toxicology of parathion, Adv. Chem. Series, Agricultural Control Chemicals, American Chemical Society, Vol. 1, 1950, pp. 31-38.
38. Ibid, Toxicity of Malathion, A.M.A. Arch. Indust. Hyg., 8:399-405, 1953.
39. Ingle, L.: Toxicity of chlordane to white rats, J. Econ. Ent., 40:264-268, 1947.
40. Jacobson, M., and Hall, S. A.: Determination of phosphorus in hexaethyl tetraphosphate and tetraethyl pyrophosphate, Anal. Chem., 20:736-737, 1948.
41. Judah, J. D.: Studies on the metabolism and mode of action of DDT, Brit. J. Pharmacol., 4:120-131, 1949.

42. Lackey, R. W.: Observations on the acute and chronic toxicity of toxaphene in the dog, *J. Ind. Hyg. Toxicol.*, 31: 117-120, 1949.
43. Ibid, Observations on the percutaneous absorption of toxaphene in the rabbit and the dog. II, *J. Ind. Hyg. Toxicol.*, 31:155-157, 1949.
44. Leach, P. H.: Organic phosphorus poisoning in general practice-Parathion, TEPP, HETP, ENP and others, *California Medicine*, 78:491-495, 1953.
45. Lehman, A. J.: Pharmacological considerations of insecticides, *Bull. of Assoc. Food and Drug Officials*, 13:65-70, 1949.
46. Lidov, R. E., Bluestone, H., and Soloway, S. B.: Alkali-stable polychloro organic insect toxicants, aldrin and dieldrin, *Adv. Chem. Series, Agricultural Control Chemicals*, American Chemical Society, Vol. 1, 1950, pp. 175-183.
47. McNamara, B., and Krop, S.: The treatment of acute poisoning produced by gamma hexachlorocyclohexane, *J. Pharm. Exper. Therap.*, 92:147-152, 1948.
48. Philippot, E., et Dallemagne, M. J.: La toxicité du gammexane, *Experientia*, 3:118-119, 1947.
49. Ibid, Nouvelles recherches relatives aux variations de la kaliemia pendant les convulsions dues a l'isomere γ de l'hexachlorocyclohexane, *Arch. Int. Pharmacodyn.*, 77:82-84, 1948.
50. Philips, F. S., and Gilman, A.: Studies on the pharmacology of DDT (2,2 bis-(parachlorophenyl)-1,1,1 trichloroethane), I. The acute toxicity of DDT following intravenous injection in mammals with observations on the treatment of acute DDT poisoning, *J. Pharm. Exper. Therap.*, 86:213-221, 1946.
51. Philips, F. S., and Gilman, A., and Crescitelli, F. N.: Studies on the pharmacology of DDT (2,2 bis-(parachlorophenyl)-1,1,1 trichloroethane). II. The sensitization of the myocardium to sympathetic stimulation during acute DDT intoxication, *J. Pharm. Exper. Therap.*, 86:222-228, 1946.
52. Stohlman, E. F., and Smith, M. I.: Toxicological action and metabolic fate of chlordan, *Adv. Chem. Series, Agricultural and Control Chemicals*, American Chemical Society, Vol. 1, 1950, pp. 228-232.
53. Welch, H.: Tests of the toxicity to sheep and cattle of certain of the newer insecticides, *J. Econ. Ent.*, 41:36-39, 1948.
54. Wreath, A. R., and Zichefoose, E. J.: Chemical estimation of tetraethyl pyrophosphate, *Anal. Chem.*, 21:808-810, 1949.



The Insecticides

Their Hazard in Industry and in the Home

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PART II. CLINICAL ASPECT

THE HOUSEWIFE is the most ignored, unprotected figure in the whole pattern of American industry. In her small plant called the home are all types of machinery, power tools, electrical and mechanical devices which she operates with blissful disdain of danger. This home-plant contains solvents, detergents, degreasers, bleaches, dyes, paint thinner, paint remover, fertilizers, fungicides, rodenticides, insecticides and other chemicals—all potential hazards to health.

In industry the worker is provided with personal safety equipment such as protective clothing, goggles and respirators, and is afforded general protection such as exhaust ventilation, hoods, spray booths, degreasing machines and the like. He is instructed in the handling of hazardous material. Yet the housewife as a skilled and unskilled laborer in the home remains untutored. She abides by no safety code nor is she compelled to do so by the Industrial Accident Safety Division.

The foregoing observation is consistent with the statistics on insecticide poisoning. Fewer than ten per cent of cases of insecticide poisoning observed by the author were of industrial origin.

In a communication that is companion of this one, Dr. Haley discussed the chemical and pharmacological properties of the chlorine-containing compounds and the esters of phosphoric acid, more commonly referred to as the organic phosphate group. This paper is to deal with the clinical aspects of intoxication from undue exposure to these chemicals. Since the insecticides here under discussion have been in use for relatively short times, knowledge of clinical aspects cannot be considered complete, and what is said now may be premature. Some conclusions may have to be altered or discarded later. However, we must continue to apply, with regard to the insecticides, the yardstick by which diagnostic factors in an occupational disease are measured—namely, what, how long and how much. *What* means the identification of the chemi-

• Within the past decade the chemist has evolved a new group of insecticides having a greater range of toxicity to insects—and to man. Since their use is ubiquitous, it is imperative that information be widely disseminated regarding proper cautionary measures as well as the early signs and symptoms of toxicity.

cal and physiological properties of the substance; *how long* means the length of exposure; and *how much* means the degree of concentration of the chemical within the environment of the exposed person. With these facts accurately ascertained and the clinical features evaluated, the sum total can be compared with the corresponding features of known, established entities, and there is then little likelihood that a bizarre, impossible or undocumented case will be accepted as occupational.

Another factor demanding attention at this time is the interpretation given to animal experimentation in relation to human intoxication. Before a material is placed on the market, industrial research attempts to find a point at which the most sensitive subject becomes adversely affected—through eating, inhaling or having bodily contact with the material. This is done with experiments on animals.

One of the first steps in experimental investigation is the determination of the lethal dose (LD). It is possible to speak of the minimum dose lethal for all animals of one kind (LD_{100}) or the maximum dose lethal for no animal in a group (LD_0). These extremes are difficult to determine. The easiest dose to determine is the dose that would kill 50 per cent of the test animals (LD_{50}), and it is the one most frequently used in expressing the acute toxicity of a chemical for a given species of animal. It is of course the *average* killing dose and cannot be applied to any individual.

Having determined the toxicity, the next step is to find out how much of a chemical can be tolerated without injury. This is known as the maximum allowable concentration (MAC). Keeping the amount below the MAC in an industrial environment gave rise to the need for industrial hygienists and indus-

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trial engineers. But as important, perhaps, as the establishment of the LD and MAC is the proper interpretation of those factors. It must be remembered that what occurs in laboratory animals does not necessarily also occur in humans.⁷

The matter of interpretation leads to consideration of the subject of insecticide storage in adipose tissue. There appears little doubt that, with the exception of methoxychlor, the chlorinated hydrocarbon insecticides do accumulate in fat and with some of them the tissue acts as a biologic magnifier. Some observers have postulated possible effect of this fat storage upon enzymatic activity and upon the synthesis of cholesterol. As yet, however, the significance of insecticide storage in human fat is not clearly apparent. Biskind and Bieber² felt that "the insecticides are slowly poisoning the nation." Yet Fowler³ of the U. S. Public Health Service, after a survey, concluded that "in all the studies reported, no evidence could be found that the insecticides were the direct or indirect cause of any *chronic* disease, nor a contributing cause in diseases generally recognized as having other etiologies."

CHLORINATED HYDROCARBON INSECTICIDES

Today the chlorinated hydrocarbons are the most widely used of all the insecticides. Unfortunately there is no uniformity in the derivation of the names by which they are known. A few are known by initials, such as DDT for dichloro-diphenyl-trichloroethane, while others appear on the market by trade names. Although first prepared in 1874 and recognized as an insecticide in 1936, DDT was not utilized in America until 1942. A number of others have appeared since, notably benzene hexachloride, the gamma isomer of benzene hexachloride, methoxychlor, toxaphene, chlordane, aldrin, dieldrin and Heptachlor.[®] They are usually marketed in a powdered state for dusting or in oil or as emulsified concentrates in such vehicles as xylene and kerosene.

In popular terms the chlorinated hydrocarbon insecticides have been referred to as "convulsant drugs" or "cerebrospinal poisons." Medically, the chlorinated hydrocarbons always have been classified as primarily narcotic or anesthetic drugs, which these insecticides are, with potential secondary effects upon the liver or kidneys. But they are more than just narcotics. As a starting point, they can be compared with chloroform or carbon tetrachloride. It must be borne in mind that this relation is in regard to physiological reaction, and that the gradation of severity of signs and symptoms depends upon concentration as well as length of exposure to absorption by inhalation or through the skin.

If the exposure is mild, a feeling of fullness of the head and dizziness or drowsiness are to be expected. An increased exposure results in headache and lethargy and, in states of greater severity, stupor or coma. In a stage of coma, choreic or athetotic movements or convulsive seizure may appear. These extremes in nervous system involvement are in contrast to the reaction to the ordinary chlorinated hydrocarbons. This is due to variations in arrangement of the molecular structure. In other words the effect of the insecticides is narcosis *plus* hyperexcitability of the central nervous system. Ingestion of these insecticides produces the foregoing conditions also, except the onset is often more rapid and the gastrointestinal symptoms more violent.

The order of potency of these chlorine-containing insecticides is probably as follows, starting with the least toxic: Methoxychlor, DDT, benzene hexachloride (or lindane), chlordane, aldrin and dieldrin. The exact position of toxaphene clinically is uncertain.

Among persons who formulate these insecticides, dilute the concentrates, package them and handle them in other ways, there are instances of headache, nausea, vertigo and general malaise, but severe reactions are rare. This is owing to intelligent protective measures. Hayes⁵ and associates found no injury to workers engaged in field trials with dieldrin. Princi and Spurbeck⁸ studied, clinically and by laboratory means, 34 workers engaged in the manufacturing of chlordane, aldrin and dieldrin. There was no evidence of deleterious effect in this group. Alvarez and Hyman¹ studied a group of workers by liver and kidney function tests, x-ray films of the chest, examinations of the blood and sedimentation rate determinations. They found neither clinical nor laboratory evidence of insecticidal poisoning.

Diagnosis

Diagnosis rests upon an adequate history. If there is record of exposure, the exact chemical involved must be determined. The signs and symptoms in a given case must be compared with those of the established entity. Functional studies of the liver and kidneys must be carried out. Biopsy of adipose tissue has no meaning so far as correlating the findings with the clinical picture is concerned. Investigators of the U. S. Public Health Service (Epidemiological Center) at Savannah, Georgia, examined hundreds of specimens of fatty tissue from persons exposed to DDT. The specimens contained a wide range of DDT and yet no clinical evidence of disease was noted in the persons from whom the specimens were taken. Further, until an acceptable test is devised to differentiate DDT from

other chlorine-containing chemicals, fat biopsies remain nonspecific.

Treatment

Treatment varies with the route of absorption and degree of intoxication. If the insecticide was ingested, gastric lavage is indicated as early as possible, followed by purging with magnesium sulfate. Oily cathartics are contraindicated, for they facilitate absorption of the poison. In the early stages and if the history indicates exposure was mild, oral administration of the barbiturates is indicated. If the signs indicate an impending convulsive state, heavy dosage of intravenous barbiturates is the treatment of choice.

A high protein diet is indicated, although rarely (in the author's experience) is the liver appreciably disturbed. In this connection the word *disturbed* is chosen over *damaged*. In 20 years of practice limited to clinical industrial toxicology, the author has studied the function of the liver following assault by numerous chemicals and is convinced that actual damage in terms of destruction of liver cells or cirrhosis is extremely uncommon. Furthermore this clinical experience is in keeping with observations made by investigators in experimental research, that when actual damage does occur, it is invariably of short duration. Persons who are apprehensive of prolonged hepatic dysfunction forget the recuperative power of the liver. They also forget that one of its principal functions is to detoxify.

ORGANIC PHOSPHATES

The organic phosphates were developed during World War II for chemical warfare. The first of these to be used in this country as insecticides were hexaethyl tetraphosphate (HETP), tetraethyl pyrophosphate (HEPP) and parathion. They have their greatest utility in agriculture under intelligent supervision and have no place in domestic or home garden use. There is ample evidence that organic phosphate poisoning is uncommon among professional sprayers.

In view of their similarity, only parathion will be considered. Against most industrial materials the skin serves as a barrier of absorption. But parathion is absorbed rapidly through the skin. By whatever route it enters, the affected person first notices headache and dizziness followed by abdominal cramps, diarrhea and sometimes uncontrolled defecation and urination. Constriction of the throat and chest become severe and alarming. The patient perspires profusely, cannot focus his vision, and if he attempts to walk he will stagger or fall. Coma sets in with convulsions and Cheyne-Stokes respiration. Unless treatment is given, death results.

The physical signs are primarily those of autonomic nervous system stimulation due to cholinesterase inhibition. The blood pressure decreases in the early stages of intoxication and later becomes elevated. Perspiration, lacrimation and salivation are present. One of the most characteristic signs is pinpoint nonreactive pupils. Miosis has been the cause of a number of airplane crashes in California among the agricultural dusters.

Diagnosis

If even the milder of the foregoing signs and symptoms appears in a person known to have been spraying with the insecticide within the previous 12 hours, a presumptive diagnosis of parathion poisoning is justified, for the clinical course is rapid and the early use of atropine is specific.

The confirmatory laboratory test is the depression of cholinesterase activity of both the erythrocytes and plasma. According to Hamblin and Golz⁴ "Unequivocal inhibition of red cell cholinesterase must be demonstrated to justify a definitive diagnosis, and a diagnosis that is made in the absence of depressed cholinesterase levels is open to grave doubt."

Most laboratories report cholinesterase activity as a percentage of normal. Such a report is readily understood and less confusing than a report which expresses the result in terms of the units of measurement, since the latter differ with the various methods. This practice has the further advantage of permitting comparison of results from different laboratories. However, each report should clearly state the method of determination and, in the case of the electrometric method, the normal values for the particular laboratory.

The Bureau of Adult Health in California has a list of laboratories qualified to carry out this test. Each physician should inquire of this bureau where such a laboratory is located in his community.

Treatment

Parathion poisoning necessitates emergency measures. Atropine should be given intravenously before any other medication is given and before the patient is taken home or to a hospital. Large, repeated doses are necessary—2 to 4 mg. of atropine intravenously at 5 to 10-minute intervals until obvious improvement occurs. Then mild atropinization should be maintained for 48 to 60 hours. If convulsions do not subside, barbiturates may be useful. Morphine is contraindicated.

Prevention

Agricultural users of organic phosphates should wear protective clothing, which should not be worn home and should be washed before it is used again.

Shower baths should be taken at the end of the day's work. If there is any intimation of undue exposure of the eyes, the eyes should be irrigated with isotonic sodium chloride. For workers who handle parathion in industrial plants, respirators and eye-goggles in addition to protective clothing are advised. Meticulous personal hygiene for all workers is essential.

The organic phosphates should not be used at all in homes or in home gardens. But with regard to all other insecticides or other poisons, the medical profession has an obligation to educate the non-industrial community. Physicians must learn more themselves about the properties of home-used solvents or powders. It would be advisable for county medical societies to distribute literature on the subject for physicians to keep in their reception rooms or mail to patients. Educational literature should be supplied to school children to take home.

Another suggestion is a more complete, intelligent labeling system on the bottled or packaged goods. The mere chemical names of the ingredients are inadequate. The warning "not to breathe" is silly, for obeying it entails an almost impossible feat. The instructions should define exactly and simply the manner in which the product can be safely used and under what conditions. This would be good

preventive medicine. In California alone, pesticide poisoning causes three times as many fatalities in the home as it does in industry. How many more nonfatal poisonings occur cannot be estimated. Of greatest importance to creating a safer home environment is education, a great part of which should be directed and stimulated by the medical profession.

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REFERENCES

1. Alvarez, W. C., and Hyman, S.: Absence of toxic manifestations in workers exposed to chlordane, *Arch. Indus. Hyg. and Occup. Med.*, 8:480, 1953.
2. Biskind, M. S., and Bieber, I.: DDT poisoning. A new syndrome with neuropsychiatric manifestations, *Am. J. Psychotherapy*, 3:261, 1949.
3. Fowler, R. E. L.: Insecticide intoxication, *J. Agr. Food Chem.*, 1:469, 1953.
4. Hamblin, D. O., and Golz, H. H.: Parathion poisoning—A brief review, *Ind. Med. and Surg.*, 24:2, 1955.
5. Hayes, W. J., Ferguson, F. F., and Cass, J. S.: The toxicology of dieldrin and its bearing on field use of the compound, *Am. J. Trop. Med.*, 31:519, 1951.
6. Price, D. E.: Relationship of Pesticides to Health: National Agricultural Chem. Assn., Sept. 8, 1954.
7. Princi, F.: DDT toxicity up to date, *Soap and Chem. Specialties*, 30:167, June 1954.
8. Princi, F., and Spurbeck, G. H.: A study of workers exposed to the insecticides chlordane, aldrin and dieldrin, *Arch. Indus. Hyg. and Occup. Med.*, 3:64, 1951.



A Five-Year Study of Prematurity

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PART I

IN ORDER TO GET a comprehensive picture of prematurity as seen at Children's Hospital, San Francisco, a study of a five-year period (1948-1952) was undertaken. The work was divided into three parts. The first part consists of data collected by coding all items on the maternal and infants' charts and compiling this material into a workable form by the use of punch cards. The second part is an analysis of fatal cases, both stillborn and neonatal deaths, and the maternal and infant factors related to the outcome. The third part is a study of follow-up data on the survivors.

Children's Hospital is a general hospital for women and children. It is largely private, but Community Chest and endowment funds permit some clinic practice. A random sampling of the five-year period under study showed that 10 per cent of the maternity patients were clinic patients and 90 per cent were private. In approximately 90 per cent of the obstetrical cases, delivery was done by physicians limiting their practice to obstetrics and in the remaining 10 per cent by a limited number of general practitioners.

The nurseries for newborn babies at the hospital are under the supervision of the Department of Pediatrics and comply with the standards formulated by the American Academy of Pediatrics.

The hospital is approved for intern and resident training.

In this study, the definition of prematurity that is accepted by the American Academy of Pediatrics was used, namely, "any child under 5½ pounds or 2,500 grams regardless of the period of gestation." The Children's Bureau interprets a live-born child as one which shows any evidence of life (breathing, heart beat, or movement of voluntary muscles) after complete birth. Birth is considered complete when the child is altogether outside the body of the mother, even if the cord is uncut and the placenta attached.

In the five-year period from January 1, 1948, to December 31, 1952, there were 11,183 deliveries at Children's Hospital. Of this number, 626 were

• To get a comprehensive picture of prematurity and neonatal death or survival, all factors on the maternal and fetal records that might be pertinent were recorded. This information, having to do with factors such as age, gravida of the mother, blood group incompatibility, period of gestation, weight at birth, type of delivery, medication and anesthesia administered to the mother, is presented in tabular form.

In the study of perinatal mortality it was noted that failure to establish normal pulmonary ventilation is the most common cause of death in the neonatal period. Maternal history of relative infertility, that is, previous abortions, stillbirths and premature deliveries, was the most impressive finding in the stillborn series.

In the follow-up study of premature infants who survived the neonatal period, 8.5 per cent were found to be severely handicapped. In four cases the handicap was due to congenital anomalies, in two others probably to infection, leaving 12 with complications possibly ascribable to prematurity. Six of these had retrolental fibroplasia as a major handicap. In seven, mental retardation was the presenting problem. Most of the handicapped children had multiple handicaps, which included spasticity, delayed motor development, strabismus, etc. The incidence of the necessity for corrective measures for feet and legs appeared relatively high.

In general, survivors compared favorably with the rest of the childhood population. Complications and twinning were associated inordinately often.

born-alive prematures, with 90 neonatal deaths (under 28 days). The rate (per cent) of premature live births was 5.6, and the rate of neonatal deaths in the premature group was 14.07 per cent. The number of survivors was 536, or 85.93 per cent. There were 97 stillborns. As a control, data were gathered on the same number of term deliveries in the same period, the records being taken at random from the hospital's archives.

The race and economic status was included in the study but the data are of no significance because of the type of hospital and the patients admitted. Generally, in the case of indigent patients, delivery is done at a county hospital.

Data on the ages of mothers are given in Table 1. There was no appreciable difference, so far as the ages of the mothers is concerned, between the total group of born-alive prematures, the neonatal fatali-

From the Department of Pediatrics, Children's Hospital, San Francisco. The study was made possible by a grant from Mothers' Milk Bank, San Francisco.

ties, the stillborns, and the normal control group. There was only one mother under 15 and none over 45 years of age. It is in these extremes that prematurity increases. The gravida of the mothers is shown in Table 2. The rates for the three groups—total, neonatal deaths, and stillborns—varied little between groups and differed in no appreciable degree from the corresponding data on the control group, except in the last category, "Gravida over V," where the fatality rate in prematures was higher.

Table 3 gives data on the babies with respect to Rh factor and isoimmunization factor in the parents. The ratio of known "negative" to known "positive" in the group was the same as in the general population—that is, about 15 per cent of the mothers were Rh-negative.

Maternal factors in the premature cases are listed in Table 4.

Multiple births is another factor in prematurity. During the period there was one set of triplets; all three infants survived and developed normally. There were 62 sets of twins, or 124 individuals, with a mortality of 7½ sets, or 15 individuals, a

TABLE 1.—Age of Mothers of Premature Babies*

Mothers' Age Group (Years)	Babies		
	Born Alive	Fatal Cases	Stillborn
0 to 15.....	1	0	0
16 to 25.....	208	33	27
26 to 35.....	344	44	58
36 to 45.....	73	13	12
Over 45	0	0	0
Total.....	626	90	97

*No difference noted in control group.

TABLE 2.—Mothers of Premature Babies Classified as to Gravida

Gestation of Mother Gravida	Babies		
	Total	Fatal Cases	Stillborn
I.....	241	30	44
II.....	189	32	24
III.....	118	18	17
IV.....	45	3	6
V.....	16	4	4
Over V.....	13	3	2
Total.....	626	90	97

TABLE 3.—Premature Babies Grouped as to Parents' Rh and Isoimmunization

	No. Babies
Mother Rh-negative	72
Mother Rh-positive	495
Mother's Rh not recorded.....	59
Isoimmunization	1
Husbands of Rh-negative mothers also Rh-negative.....	5
Babies of Rh-negative mothers also Rh-negative.....	1
Babies, with Rh-negative mothers, who died (not necessarily of erythroblastosis).....	10

death rate of 12 per cent of premature twins. (Further comments on twinning will be made in the follow-up study on survivors.)

The type of delivery of premature infants, both of the total group and the fatal cases, is given in Table 5. The number of cesarean deliveries done in a random sampling of all deliveries during the five-year period was 7.8 per cent.

The period of gestation in this series was computed from the attending physician's calculated date of delivery as given on the medical record. Table 6 gives data on that factor. Data on the weight at birth is given in Table 7. It was interesting to note that of the total 626 live-born prematures, 55 per cent were females, whereas in the fatal cases 48.9 per cent were females.

TABLE 4.—Conditions Associated with Prematurity

	No. Cases
Maternal toxemia	56
Uterine and adnexal disease.....	54
Infections	28
Metabolic and endocrine disease.....	21
Renal disease	6
Vascular disease (essential hypertension).....	6
Cardiac disease	5
Genital disease:	
Premature rupture of membranes.....	189
Premature separation of placenta.....	53
Placenta praevia	19
Not significant	189

TABLE 5.—Type of Delivery of Premature Infants

Type of Delivery	Total	Fatal Cases
Spontaneous	133*	28
Cesarean section	91†	23
Forceps	333	27
High	3	
Mid	20	
Low	310	
Breech extraction	60	11
Version	9	1
Total.....	626	90

*Includes 16 spontaneous breech.

†Includes 18 repeat section.

TABLE 6.—Data on Premature Babies with Relation to Calculated Periods of Gestation

Gestation in Weeks	Male	Female	Total	Fatal Cases	Per Cent Fatal Cases
17 to 20.....	0	0	0	0	0
21 to 24.....	3	3	6	6	100
25 to 28.....	14	13	27	22	81.5
29 to 32.....	42	37	79	30	37.9
33 to 36.....	106	133	239	23	9.6
37 to 40.....	108	137	245	7	2.8
Over 40	9	21	30	3	10
Total.....	282	344	626	90	

TABLE 7.—Distribution of Prematures by Weight Groups

Weight Groups	Male	Female	Total	Fatal Cases			Mortality Rate (Per Cent)
				Male	Female	Total	
Less than 1,000 gm. (2 lb. 4 oz.)	14	19	33	13	16	29	87.8
1,001 to 1,500 gm. (2 lb. 4 oz. to 3 lb. 4 oz.) ..	31	26	57	9	11	20	35.0
1,501 to 2,000 gm. (3 lb. 5 oz. to 4 lb. 5 oz.) ..	43	71	114	5	10	15	13.2
2,001 to 2,500 gm. (4 lb. 6 oz. to 5 lb. 8 oz.) ..	188	224	412	13	3	16	3.9
Unknown	6	4	10	6	4	10	100
Total.....	282	344	626	46	44	90	
	45%	55%		51.1%	48.9%		

TABLE 8.—Neonatal Deaths in Relation to Premedication and Anesthesia

A. Premedication	Number of Cases	B. Anesthesia	Number of Cases
Atropine	1	Local	7
Barbiturates	56	Spinal	36
Meperidine	18	Caudal	9
Nisentil®	5	Pentothal	
Morphine	6	intravenously	3
Dilaudid®	1	General	32
Paraldehyde	3	None	9
None	9		

TABLE 9.—Methods of Resuscitation and Number of Premature Infants Who Received Treatment

Method	1948	1949	1950	1951	1952	Total
Mistogen	0	0	0	7*	23*	30
Airlök	0	0	12§	38§	24§	74
Bronchoscope† or laryngoscope‡	2‡	6‡	0	6†‡	0	14
Total.....	2	6	12	51	47	118

*1951, 3 died; 1952, 9 died; 8 also in Airlök and 4 in Mistogen and Airlök.

§1950, all died; 1951, 8 died; 1952, 8 died.

‡1948, 1 died; 1949, 3 died; 1951, 1 died.

†1951, 1 bronchoscope.

In Table 8 is given the type of medication and anesthesia used in the fatal cases. This is given without further breakdown, which would have to be individualized to be of any significance. From a pediatric point of view, the frequency with which sedation is used is impressive and worthy of scrutiny in relation to failure to expand lungs properly, the most commonly encountered cause of death in the group.

During the five-year period, various methods of resuscitation and aiding early respiratory distress were tried (Table 9). The number of laryngoscopic examinations done varied from year to year with the training and enthusiasm of the residents.

Data on oxygen therapy over the five-year period (Table 10) will be referred to again in Part III of this report dealing with follow-up of survivors.

Since many pediatricians care for the infants on a private basis, various types of food formulas were

TABLE 10.—Data on Oxygen Therapy of Premature Infants

Oxygen Used	No. Cases					
	1948	1949	1950	1951	1952	Total
I. High: Live	8	3	5	6	3	25
Dead	8	18	6	12	10	54
II. Medium: Live	25	40	32	25	24	146
Dead	2	6	2	5	4	19
III. Low: Live	17	40	20	26	31	134
Dead	0	1	0	1	0	2
IV. None: Live	57	38	38	41	60	234
Dead	6	3	2	1	0	12
Total.....	123	149	105	117	132	626

TABLE 11.—Type of Feeding

Type of Feeding	No. Cases					
	1948	1949	1950	1951	1952	Total
Breast milk	0	5	1	3	1	10
Cow's milk	96	91	83	87	107	464
Both (B and C)	12	32	13	10	12	79
Others	1	0	0	0	0	1
None	14	21	8	17	12	72
Total.....	123	149	105	117	132	626

TABLE 12.—Premature Infants Who Received Transfusions and Iron Therapy

Therapy for Anemia	1948	1949	1950	1951	1952	Total
Transfusion:						
Exchange	0	0	0	0	0	0
Simple	2	5	2	4	9	22
Iron per os.....	7	15	3	4	3	32
Iron and simple transfusion	2	3	0	0	3	8
Total.....	11	23	5	8	15	62

used. The hospital is provided with breast milk by the Mothers' Milk Bank, supported by the Baby Hygiene Committee of the local American Association of University Women. In only a few cases was the diet made up entirely of breast milk, for even where breast milk was used, a change to artificial feeding was usually made several days to a week or more before dismissal. Also, several physicians used some form of concentrated protein with

TABLE 13.—Duration of Hospital Stay of Premature Babies

Duration of Stay	1948	1949	1950	1951	1952	Total
1 hour	4	0	0	0	0	4
2 to 24 hours.....	8	14	2	11	9	44
25 hours to 3 days.....	2	9	6	6	7	30
4 to 7 days.....	21	29	20	24	41	135
8 to 15 days.....	46	34	29	29	29	167
16 to 30 days.....	29	39	34	33	33	168
31 to 45 days.....	10	17	10	8	8	53
46 to 60 days.....	1	5	2	1	4	13
61 to 75 days.....	1	2	2	3	0	8
76 to 90 days.....	1	0	0	1	0	2
Over 90 days.....	0	0	0	1	1	2
Total.....	123	149	105	117	132	626

the breast milk to encourage a more rapid gain in weight.

Table 12 gives data on transfusions and iron therapy for premature infants.

Perinatal Mortality

PART II

OF THE 626 BORN-ALIVE PREMATURES during the five-year period from 1948 to 1952, 90 died in the first 28 days. There were 97 stillbirths. In addition there were seven deaths in the first year. These groups will be dealt with separately.

A. Neonatal Deaths

Of the 90 premature babies who died, 53 were subjected to autopsy.

Table 15 gives the pathological cause of death in the cases in which autopsy was done and the clinical diagnosis in the other cases. Potter¹ noted that atelectasis is not a diagnosis and that prematurity, unless the infant is pre-viable, is not a cause of death. By these criteria, there was unsatisfactory diagnosis in 25 of the 37 fatal cases in which autopsy was not done. In only five cases in which postmortem examination was done was no adequate cause of death found. The lungs in these five were atelectatic, indicating failure to inflate properly.

From the analysis, it is obvious that the chief cause of death was lack of proper pulmonary ventilation. There were thirteen with hyaline-like membrane, six with hemorrhagic pneumonia, and, in addition, four had infectious pneumonia, prenatal in origin. In four of the eight cases in which death was ascribed to trauma, there was failure to establish normal respiration. Respiratory failure was the clinical diagnosis in four of the cases in which autopsy was not done. In 18 cases in which the

TABLE 14.—Neonatal Deaths in Various Age Groups in Present Series

Duration of Life	1948	1949	1950	1951	1952	Total
Less than 1 hour.....	4	0	1	0	0	5
2 to 24 hours.....	8	14	2	10	9	43
25 hours to 2 days.....	2	6	5	6	2	21
3 to 5 days.....	1	5	0	2	2	10
6 to 10 days.....	3	2	0	0	1	6
11 to 28 days.....	2	1	1	1	0	5
Total deaths	20	28	9	19	14	90
Number of autopsies..	9	15	9	13	7	53

Data on the hospital stay of the premature infants is given in Table 13. Most survivors were dismissed in the first 30 days; very few stayed more than 45 days.

Survival time of the premature infants in this study, which will be discussed in Part II of this presentation, is shown in Table 14.

cause of death could not be determined, atelectasis was noted either clinically or at autopsy.

To reduce premature mortality, the problem of establishing normal ventilation must be attacked. Much has been learned about pulmonary physiology in the last few years in the study of respiratory paralysis in poliomyelitis and in the study of cardiac surgery. Great advances have also been made in anesthesiology. The principles learned need to be applied and modified for infants. In newborn babies the problems concern essential structures that are affected before they have ever functioned, such as the respiratory center and uninflated lungs. The additional factor in preventing respiration, namely obstruction within the air passages, is relatively simple to handle. Potter repeatedly empha-

TABLE 15.—Autopsy Diagnosis and Clinical Diagnosis in Fatal Cases

Autopsy Diagnosis	No. Cases	Clinical Diagnosis Only
Malformations	7	0
Erythroblastosis	0	0
Anoxia (placenta praevia, abruptio placenta)	6	5
Infection:		
Prenatal	4	
Postnatal	2	
Trauma	8	1
Prematurity (pre-viable)	1	0
Abnormal pulmonary function.....	19	12
Hyaline-like membrane	13	4
Hemorrhagic pneumonia	6	
Miscellaneous	1	2
Unknown (atelectasis)	5	13
Total.....	53	37

sized that in fetal development the lungs are ready to function early, and only in pre-viable infants is pulmonary immaturity a cause of failure to ventilate adequately. The source of trouble, therefore, must be sought in the central nervous system and in factors affecting the respiratory center. These factors are: Anoxia due to interference *in utero* with circulation, such as premature separation of the placenta or disease of the cord; trauma during delivery, such as prolonged labor, severe moulding of the head, tears of the tentorium; shock of the infant from a combination of the factors above; and, finally, oversedation from premedication of the mother and from the anesthesia.

In the study of resuscitation, several medical specialties should participate. A valuable practice at Children's Hospital has been one or two joint conferences with new house officers yearly, in which members from the three departments — obstetrics, pediatrics and anesthesia — partake, reviewing all the foregoing factors concerning resuscitation and the immediate management of the infant.

The present practice at Children's Hospital consists of emptying the infant's upper air passages of excess fluid immediately after delivery, both by gravity drainage in the old-fashioned manner and by suction as indicated. Sometimes direct laryngoscopy is used for suctioning, other times not. Use of a bronchoscope is seldom indicated and is usually more traumatic than beneficial. The stomach contents are usually removed because a baby, only partially awake and still shocked, will regurgitate and aspirate. Often, 10 or 15 cc. of fluid is obtained. There is usually no necessity to institute immediate vigorous stimulation. A little patience is generally rewarded by the infant's making some respiratory effort. If stimulation is indicated, gentle rocking imitating a rocking-bed, or pulling the hair, may be done. If this does not suffice, oxygen under positive controlled pressure by a trained person is tried, rather than mouth-to-mouth breathing. The best method of applying positive pressure to an uninflated or partially inflated lung still needs to be devised. After respiration is established, the infant is kept in an isolette with moist oxygen, and the addition of Mistogen or Alevaire is often practiced. The oxygen is always measured, is kept under 40 per cent, and is lowered or discontinued as rapidly as the baby's function improves.

The Airlok has been available since 1950. Whether or not it is of value is controversial. The previously outlined principles of clearing the air passages and emptying the stomach contents are now conceded as necessary before placement in the Airlok, although at first it was thought that the Airlok would take care of these details. Often the infant is placed in the Airlok for the positive oxygen

pressure without cycling or with only a few runs of cycling for its stimulating effect, much like a "spanking." In a private hospital with a large staff, complete uniformity of practice is unattainable. However, obstetrical rounds, as well as pediatric rounds, are conducted regularly, and a monthly review of infant morbidity and mortality is held jointly by the departments. Table 9 (in Part I of this presentation) shows the extent to which these methods of resuscitation were used during the five-year period covered by the present study.

The method of delivery is another factor in survival. The hazard of hyaline-like membrane is increased with cesarean section. This must be weighed against the hazard of waiting for a normal delivery when the fetus shows signs of distress. The incidence of cesarean section in the neonatal death series was high—25.5 per cent. In the entire series of births the incidence of cesarean section was 7.8 per cent.

The frequency of premedication is also impressive (Table 8, Part I). In only 9 of the 90 cases of neonatal death was no sedation given to the mother prior to delivery. Although sedation is selected carefully as to kind, dosage and relation to stage of delivery, there are still factors to consider in its ultimate effect on the outcome. The excretion of the drug by the infants may vary greatly, depending on many factors. Actually, very little basic knowledge on this subject has been obtained. More important, however, is the effect of even a very little sedation on a respiratory center that has not yet functioned independently and on lungs that have never been inflated. In the series, general anesthesia was given in 32 cases, local, spinal or caudal in 52 and intravenous pentothal in three. If anesthesia is combined with premedication, the effect on the infant is probably enhanced.

The other factors relevant to neonatal mortality have been more successfully dealt with. Replacement transfusions for erythroblastosis, when well done, have saved many infants that formerly would have died and have spared many others from the consequences of kernicterus.

Infection poses less of a problem than formerly, but viruses may still invade a nursery. There was one episode of diarrhea during the five-year period covered by this study. Four infants died of it—three in the neonatal period of 28 days and one later. Fortunately, this infection did not spread to other nurseries, and it is the only instance of diarrhea of the newborn in Children's Hospital. Control of infection must be directed primarily toward personnel working with the infants. Stable, well trained nurses and aides who have been carefully schooled in the hazards of mild infection are the best safeguard. After a person who works in

or near the nursery has had a respiratory or an intestinal disease he ought not return to duty except with the permission of the pediatrician in charge of the nursery or a physician delegated by him. It is important to instruct the house staff in these precautions.

Twinning is an indirect cause of neonatal mortality, but, since often one of the twins survives, comments on twinning will be made in Part III of this study.

The survival rate in the present series compares favorably with that in series reported upon by other investigators. In the Children's Bureau Manual,² the over-all death rates by weight groups are shown as higher than those found in the series here reported upon. For example, the death rates at the New York City hospitals in 1945 (cited in the manual) compare with the rates at Children's as follows:

Locale	Weight (Grams)			
	Under 1000	1001-1500	1501-2000	2001-2500
New York	96.1	62.1	22.9	6.3
Children's	87.8	35.0	13.2	3.9

The survival time in the series here reported upon followed the pattern noted in other series, with the first few hours, or at most 48 hours, posing the greatest hazard. Deaths thereafter are often due to congenital anomalies or rare complications (Table 14, Part I).

B. Stillborns

There were 97 stillborn infants, 50 male and 47 female, during the period studied. Autopsy was done in 31 cases, as compared with autopsy in 53 of the 90 cases of neonatal death. The reason for smaller proportion of autopsies in the stillborn group is that many bodies were macerated and such extensive autolysis had taken place that autopsy could not be performed. On the other hand, more autopsies on placentas were recorded in this group. The results of the autopsies are given in Table 16.

Sixteen of the above 31 bodies subjected to autopsy were described as macerated.

Only 8 of the 97 stillborn babies were delivered by cesarean, as compared with 23 of the 90 babies who died in the neonatal period.

There were 15 Rh-negative mothers, indicating no greater influence of this factor than in the population at large. The histories of the mothers of stillborn babies were revealing. Prenatal pathologic conditions are reported in Table 17.

In 31 of the 97 cases there was a history of previous abortions, stillbirths and premature deliveries. Similar data have been noted in other studies. In a review of perinatal deaths, the frequency of relative infertility and other factors in the history, not

TABLE 16.—Autopsy Diagnosis in Stillborn Babies

Malformations	5
Erythroblastosis	1
Anoxia	6
Infection	1
Trauma	4
No abnormality noted, except atelectasis.....	14
Total.....	31

TABLE 17.—Prenatal Pathologic Conditions in Cases in Which Babies Were Stillborn

MATERNAL FACTORS	
None	47
Bleeding in early pregnancy.....	14
Toxemia	11
Metabolic disorders	7
Infection first trimester.....	5
Headache and nausea only.....	1
Death in utero unexplained.....	7
GENITAL FACTORS	
Premature separation of placenta.....	26
Placenta praevia	2
Marginal placenta	2
Extensive placental infarcts.....	15
Placental insufficiency	3
Degenerate placenta	10
Hyperplasia of placenta.....	1
Inflammation of placenta.....	7
Cord disease	6
Premature rupture of membranes.....	5
Hydramnios	4

TABLE 18.—Causes of Death After the Neonatal Period

Case	Sex	Birth Weight (lb. & oz.)	Age	Cause
1.	M	2 12	34 days	Congenital heart disease. Aspiration. Feeble.
2.	F	3 4	36 days	Infectious diarrhea (nursery epidemic).
3.	M	4 7	2½ mo.	B. coli sepsis, including meningitis.
4.	M	5 3	2½ mo.	Congenital central nervous system anomalies and meningitis.
5.	M	3 8	2½ mo.	Asphyxiation. No other details.
6.	F	4 15	1 year	Virus infection. No other details.
7.	M	4 8	1 year	Hepatitis, etiology undetermined.

necessarily recorded on the hospital charts, led to an impression that maternal causes are even more prevalent than statistical studies would indicate. Often, poor babies are the result of disease of some sort during pregnancy, and the infants become the responsibility of a pediatrician who is justified, therefore, in inquiring into the prenatal life of his charge.

Internists and psychiatrists might profitably be added to the group for discussion of the problems involved in relative infertility.

C. First Year Fatalities

As was noted earlier, it was found that seven deaths had occurred after the defined neonatal period of 28 days. The causes of death and the age at which death occurred are listed in Table 18.

REFERENCES

1. Potter, E. L.: The trend of changes in causes of perinatal mortality, J.A.M.A., 156:1471-1474, Dec. 18, 1954.
2. Premature Infants—A manual for physicians. Federal Security Agency, Children's Bureau.

Follow-up Study of Premature Survivors

PART III

IN THE PRESENT SERIES 536 of the 626 born-alive premature babies survived beyond the neonatal period. As a part of the study of various aspects of prematurity, a follow-up of survivors was carried out. This was done by formulating a questionnaire that would be simple to fill out by the mothers and would reveal a fairly accurate picture of the development of the child. A photograph of the child was requested. It was not expected that all the children could be reached nor was it intended to make a statistical comparison of these children with full-term babies. The aim was to get a fair sampling of the group and to detect, if possible, the areas of development most frequently affected adversely by prematurity in order that more careful attention to these conditions might be undertaken even during the stay in the nursery. Although there are good studies on growth and development of children, there are few that give the incidence of various defects at the different age levels. The number of cases of foot and leg deformities, the frequency of strabismus, the number of respiratory infections a year at different age levels—these are things on which data are not available. Pediatricians have impressions that certain defects are more common in premature than in full-term infants. The value of the present study is limited by the inability to compare with data on full-term infants, but it highlights certain aspects of prematurity that deserve further evaluation.

It was possible to get a fairly complete follow-up on 218 children, or 40.7 per cent of the 536 survivors. There were 108 males and 110 females. A picture of the child was supplied in 98 cases, and in 40 cases the replies to the questionnaire were checked with office records of one of the authors.

The large majority of premature infants on whom follow-up data were obtained were robust, healthy little individuals who, often by one year or, at the latest, two, had compensated for their prematurity.

A careful analysis of defects recorded, and a comparison of them with the findings in the maternal and infant records, was made (Tables 19 to 21).

There were seven deaths between the neonatal 28-day period and one year. (These deaths were reviewed in Part II.) No other fatalities were reported. The study of defects was made on 211 cases.

The six cases of blindness (Table 19) were due to retrolental fibroplasia. An analysis of the cases, the years they occurred, and oxygen administration is given in Table 21.

The incidence of cardiac anomalies did not seem high. There were three babies recorded as having congenital heart defects and five others mentioned as having heart murmurs. The three with congenital defects were observed periodically in the cardiac clinic at Children's Hospital. There were five children who had been in casts for feet and leg deformities, 11 had worn braces, 33 wore corrective shoes, 11 were late walkers (after 20 months) and in one congenital abnormality of the hip is recorded. There were ten operations for inguinal hernia, seven for eye corrections, seven for miscellaneous conditions, and 25 tonsillectomies. In addition there were 11 hospitalizations for miscellaneous medical conditions. Two children were noted to have had convulsions. Four had transfusions for anemia, and six minor congenital defects (such as birthmarks and stridor) were mentioned.

A special study was made of the infants with evidence of central nervous system damage (Table 20). Several had been registered in the cerebral palsy clinic or in the neurological clinic at Children's.

Although the defects recorded in the survivors studied may seem, in aggregate, somewhat imposing, only 18 children were relatively severely

TABLE 19.—Visual Disturbances in Premature Infants

Abnormality	Number of Cases	Per Cent
Blindness	6	2.8
Poor vision	6	2.8
Strabismus	15 (with 7 operations)	7.1
Wearing glasses	11	5.2
Consulted ophthalmologist	49	23.2

TABLE 20.—Central Nervous System Disease in Premature Infants

Mentally retarded	7
Mongol	1
Arrested hydrocephalus	1
With motor involvement	3
Without motor involvement	2
Hemiplegia	1
Quadriplegia	1
Paraplegia	1
Delayed motor development and congenital heart defect ..	1

TABLE 21.—Analysis of Severely Handicapped Prematures

Case and Year	Diagnosis	Sex	Birth Weight	Hospital Stay	Oxygen	Twin	Maternal Factors	Infant Factors
1. 1919	Retrolental fibroplasia	F	2 lbs., under 1,000 gm.	70 days	Probably high	Yes	Rh negative, two previous abortions	Slow to breathe
2. 1919	Retrolental fibroplasia	F	4 lbs., 1,501 to 2,000 gm.	46 days	Probably high	No	Negative	Cyanotic spells, Grunting respiration.
3. 1950	Retrolental fibroplasia	M	3 lbs., 1 oz., 1,001 to 1,500 gm.	53 days	Probably high	No	One premature expired	Slow to breathe, Atelectasis. Positive pressure oxygen. Caffeine.
4. 1950	Retrolental fibroplasia	M	4 lbs., 5 oz., 1,501 to 2,000 gm.	34 days	Probably high	Yes Other died	Negative	Poor respiration four hours
5. 1951	Retrolental fibroplasia	M	2 lbs., 7½ oz., 1,001 to 1,500 gm.	68 days	Airlok. High O ₂	No	One premature death. Gastro-enteritis one week.	Low forceps
6. 1952	Retrolental fibroplasia	M	2 lbs., 7 oz., 1,001 to 1,500 gm.	3 mo., 10 days	Airlok. High O ₂	No	Gravida III. Para 0. Two previous abortions.	Footling breech. Airlok 1 hour 35 min.
7. 1948	Congenital anomalies. Arrested hydrocephalus. Mentally retarded.	M	4 lbs., 15 oz., 2,000 to 2,500 gm.	10 days	None	No	Negative	Negative
8. 1950	Hemiplegia. Strabismus.	M	2 lbs., 2½ oz., Under 1,000 gm.	84 days	High O ₂	No	Lost two previous pregnancies	Cyanotic, apneic at five weeks of age. Lethargy, twitching, onset of hemiplegia.
9. 1950	Paraplegia	M	5 lbs., 8 oz., 2,000 to 2,500 gm.	16 days	High O ₂	No	Rh negative. Early ruptured membranes.	Atelectasis. High forceps. Paralysis lower extremities after circumcision upon return to hospital.
10. 1950	Mental retardation	M	2 lbs., 8 oz., 1,001 to 1,500 gm.	50 days	O ₂ probably high	No	Gravida V. Para II. Two previous abortions.	Cyanotic intermittently for six days
11. 1950	Spastic quadriplegia. Congenital hip.	F	3 lbs., 5 oz., 1,501 to 2,000 gm.	37 days	O ₂ moderate	Yes Twin died	Gravida III. Para 0. Two previous abortions.	Condition good at birth
12.*	Mental retardation. Retarded motor development.	F	3 lbs., 1 oz., 1,001 to 1,500 gm.	37 days	O ₂ high	Yes	Illegitimate pregnancy. Pre-eclampsia.	Large hematoma. Caffeine stimulation. Weak cry.
13.*	Mental retardation. Delayed motor development.	F	3 lbs., 4 oz., 1,001 to 1,500 gm.	37 days	O ₂ high	Yes	Illegitimate pregnancy. Pre-eclampsia.	Version breech extraction. Subdural hematoma.
14. 1951	Mental retardation. Retarded bone age. Delayed motor development. Congenital heart.	M	2 lbs., 8 oz., 1,000 to 1,500 gm.	75 days	O ₂ high	Yes Other died	Negative	Congenital heart. Difficult to establish respiration.
15. 1951	Mental retardation	M	3 lbs., 8 oz., 1,501 to 2,000 gm.	40 days	O ₂ high	No	Rh negative. Premature. Ruptured membranes ten days.	Two apneic episodes. Fifth day O ₂ and stimulation required.
16. 1952	Congenital heart	M	3 lbs., 9 oz., 1,501 to 2,000 gm.	36 days	O ₂ high. Airlok six hours.	No	Probable German measles early pregnancy	Pale and cyanotic. Difficult to start normal respiration.
17. 1952	Congenital heart. Delayed motor development.	M	4 lbs., 14 oz., 2,000 to 2,500 gm.	12 days	Airlok. O ₂ low.	No	One previous lost pregnancy. Bleeding two weeks early pregnancy.	Cyanotic. Congenital heart diagnosed. Collapse, later resuscitation.
18. 1952	Mongol	F	5 lbs., 2,000 to 2,500 gm.	17 days	O ₂ low	No	Negative	Negative

*Twins to each other.

handicapped—several having multiple defects. The remaining children compared favorably with the average childhood population, their defects being remediable. The severely handicapped, as here recorded, represent 8.5 per cent of survivors studied. Table 21 is an analysis of this entire group. Twelve were males and six females. The weight varied from two to five pounds. The hospital stay varied from twelve days to over three months. Five were twins; one set is in the group, the others represent the surviving member of the set. There were four with congenital anomalies, including the one mongol in the group. The cases of hemiplegia and paraplegia may have been caused by infection, which will be discussed later. This leaves 12 cases needing special inquiry.

Of the six infants with retrolental fibroplasia, four were males and two females. The birth weight varied from 2 pounds to 4.5 pounds—one was in the weight group under 1,000 grams, three in the group 1,001 to 1,500 grams, and two in the group 1,501 to 2,000 grams. Two were survivors in twin sets. All of the six had respiratory difficulty at birth of a severe degree. Two were put in the Airlok, one for 1 hour and 35 minutes. One had respiratory distress for four hours, one had cyanotic spells and grunting respiration, and one was given oxygen under positive pressure and caffeine stimulation.

The maternal histories of the children with retrolental fibroplasia were referred to. Four of the six mothers had histories of previous premature fatalities and abortions. As was previously noted (in Part II of this study) approximately one-third of the mothers of stillborn infants had a history of previous abortions and premature fatalities. One mother had a history of two previous abortions, two had had one previous premature baby who died, and one mother was Rh-negative and had had three pregnancies that terminated in abortion. Although adverse factors necessitated placing the children in an atmosphere of high oxygen, it does not necessarily follow that the oxygen alone was the toxic agent in producing retrolental fibroplasia. It is likely that multiple factors operate and that the shock and anoxia may predispose tissues to pathologic change. This is true in kernicterus. The prenatal history and the environment of the fetus, as well as the shock of delivery, should be considered in a study of etiologic factors. Genetic factors may also play a role.

The six children with severe brain damage, but without retrolental fibroplasia, varied in weight at birth from 2 pounds 8 ounces to 3.5 pounds. Two were a twin set, and two others were survivors of twins. Four of the six had high oxygen therapy.

The size of the infant is not the sole determining factor, for although nine premature babies from

the nursery at Children's Hospital have registered in the cerebral palsy clinic, five full-term babies weighing between six and eight pounds have also registered there. Of special interest is the child with spastic quadriplegia, since the nursery period was relatively uneventful, and, with a weight of 3 pounds 5 ounces, there was no particular evidence that she would become thus severely handicapped.

Two of the mothers had history of previous unsuccessful pregnancies. In one case there was a history of premature separation of the placenta and, in another, ruptured membranes for ten days.

The factor of multiple births appeared very frequently in all the data on handicapped survivors in the present series. Even one of a surviving twin set has been found fairly often to be moderately to severely handicapped, as compared with the other twin. One child in the cerebral palsy group with spasticity, microcephaly and retardation was delivered with a macerated twin fetus. In the entire series of premature infants, there were six instances in which such delivery had occurred. In three of these cases the surviving twin died shortly after birth. In one set the macerated fetus and the one born alive both had multiple anomalies. In another, the born-alive infant was edematous, breathed poorly, and died shortly after delivery. At autopsy hemorrhagic pneumonia was noted. In the third case, the mother had chronic nephritis. One twin was a macerated fetus, and the other died shortly after delivery with a meningocele and hydrocephalus. In three instances, the surviving twin was dismissed in good condition.

A follow-up of two of the babies born with a macerated twin was obtained. In one instance, the mother had toxemia. The macerated fetus was a female weighing 2 pounds 4 ounces, and the other child, a boy, weighing 5 pounds 9 ounces, was dismissed after the average hospital stay and at one year of age was normal in development. In this case, one cord was found to be obstructed. In the second case in which follow-up was obtained, a female weighing 2 pounds 8 ounces was born macerated; the twin, a male weighing 6 pounds 7 ounces, was dismissed and at five years of age was a normal, healthy child. The placenta showed degenerative change in the smaller section, and autolysis of the cord was noted. In the third case both twins were females. One, weighing 4 pounds 12 ounces, was macerated, and the other, weighing 6 pounds 6 ounces, was dismissed from the nursery appearing normal. One cord had a velamentous insertion. Follow-up data in this case could not be obtained.

When these cases were discussed at medical rounds, the statement was made that, in animals, a litter born with a macerated fetus was often considered a poor litter and the entire group was de-

stroyed. This statement was confirmed by Dr. K. F. Meyer, of Hooper Foundation, University of California, as still being the prevailing philosophy in animal husbandry. However, surviving twins in the larger animals are known to have developed normally.

A curious incident occurred in the nursery during the five-year period here reported upon. The smallest premature infant in the series whose weight dropped from 2 pounds 2 ounces to 1 pound 10 ounces, or under 1,000 grams, but whose progress was satisfactory, had an unexplained convulsion at five weeks of age, after which he showed weakness of the right arm and leg. A few days later, another premature infant in the same nursery appeared more listless than usual, ate poorly, and later it was noted that her right arm was favored. Another infant, weighing 5 pounds 8 ounces, in the nursery with these two infants, was dismissed in good condition. Later, he was brought back to the pediatric ward for circumcision and, following the operation, paralysis of both lower extremities developed. Viral studies, both by chick embryo inoculation and blood agglutination, carefully pursued, were fruitless. Two of the children, the hemiplegic and the paraplegic, were still under observation at the time this report was prepared and showed rather pronounced weakness, more of the lower motor neuron than the spastic type. The third child recovered, except for slight contracture at the right elbow. There was no history of any illness among the personnel entering the nursery. The possibility of a coxsackie virus producing the condition was considered, but proof could not be demonstrated. Two of these cases are listed in the severely handicapped group and were mentioned earlier as possibly due to infection.

The weight curves of the prematures illustrate that, even with many private pediatricians in attendance and a variety of formulae used, the gains are very similar. A special analysis of the use of breast milk will be made later. Although most of the infants were fed by bottle, a specially modified polyethylene tube used by one of the authors has proven safe, nonirritating, and especially useful for the small infants or other poor feeders. Vitamin C is given routinely, singly or in combination with other vitamins. Iron, alone, was administered to 32 infants. Twenty-two infants had transfusions only. Eight had transfusion and iron by os.

RECOMMENDATIONS

From the foregoing, it is apparent that certain information already available can be put into more general practice and that in some areas further study is needed.

1. The present knowledge of retrolental fibroplasia, even though incomplete, indicates that high concentrations of oxygen may be toxic to the visual organ, at least in certain circumstances. Oxygen should be given to premature infants under prescribed conditions.
2. Failure to establish adequate pulmonary ventilation is the most frequent cause of neonatal deaths. Knowledge of respiratory physiology is still incomplete, but the use of sedatives and anesthesia should be very carefully studied. Other means of relaxation and reassurance should be explored. Methods of resuscitation should be reviewed once or twice a year to familiarize new members of a hospital staff with good practices.
3. The method of delivery should be carefully selected and its advantages weighed against its hazards. Cesarean section, in the case of prematurity, is accompanied by such a high mortality that another choice can scarcely give a higher death rate.
4. A poor fertility history in many mothers is obvious, and this is a field that should be continually studied, not only by obstetricians, but by internists, geneticists and psychologists.
5. Multiple births obviously are statistically associated with premature mortality and morbidity, and, although by its very nature this factor is largely beyond control, there are still areas that can be further studied.
6. Although the feeding of premature babies has been simplified and much new information concerning homeostasis in the newborn is available, there is still a tendency to overhydrate and overmedicate premature infants.
7. The single most valuable educational situation is a routine review of all fatal cases, neonatal deaths, and stillbirths. Obstetricians, pediatricians, pathologists, nurses, and probably sometimes hospital administrators, should participate in such reviews. Internists, psychiatrists and geneticists should be invited when certain types of cases are discussed.
8. The standards approved by the American Academy of Pediatrics should be known in every nursery and applied in so far as possible in the local situation.

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Management of Otitic Hydrocephalus

With Particular Attention to the Effect of Antibiotics

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OTITIC HYDROCEPHALUS is a rare and perplexing complication of otitis media. The signs and symptoms of this ill-defined entity are varied and vague, and have become still less specific since the introduction of antibiotic therapy. Recognition of this severe intracranial complication is essential, for ultimate blindness can be prevented only if energetic treatment is instituted at the earliest possible date. The following case may serve to illustrate the many intricate problems encountered in the diagnosis and treatment of otitic hydrocephalus.

REPORT OF A CASE

A boy, six years of age, was observed in March, 1954, with acute bilateral otitis media. Bilateral myringotomy was performed and terramycin was administered for four days. The infection cleared up satisfactorily.

The patient had had numerous attacks of otitis media since infancy. Other pertinent facts from the history include neurodermatitis at two years of age, infectious mononucleosis at three and a half, tonsillectomy and adenoidectomy at four and a half years. For the preceding two years he had had attacks of excessive sneezing in the morning, cause unknown. The father was subject to asthma, the mother diabetic. An only sibling died in infancy.

On June 4, 1954, the patient returned with acute otitis media on the right and spontaneous rupture of the tympanum. Terramycin, 100 mg. four times daily, was prescribed, and the dose was increased to 200 mg. when otorrhea was still present after four days. On the following day the left drum was bulging and myringotomy was performed. A culture of the pus at that time was reported to be sterile. However, a change was made to penicillin, 1,000,000 units daily, and this was continued another four days. On the day of myringotomy the child began to vomit, and two days later dehydration due to emesis made hospitalization necessary. The patient was afebrile. Upon examination of the blood, values were observed to be within normal limits. In view of earlier episodes of vomiting, the consulting internist felt that the present attack might be explained on an emotional basis, or that it represented a reaction to terramycin. At the time of discharge from the hos-

• Otitic hydrocephalus as a complication of otitis media is probably not so rare as is generally assumed. The onset is insidious and first symptoms are vague. Even after signs of elevated cerebrospinal fluid pressure appear, differential diagnosis remains a difficult problem.

On the basis of what is known of the pathologic features and clinical course of otitic hydrocephalus a plan for the prevention and management of this complication is suggested.

In children and adolescents with a history of recurrent otitis media and other conditions likely to produce hydrocephalic disturbances, new episodes of otitis media must be treated along classical lines, notwithstanding supplementary use of antibiotics. After recovery, extended follow-up observation is required, which should include repeated ophthalmoscopic examinations. A finding of changes in the eyegrounds calls for neurologic evaluation.

Energetic treatment, particularly daily spinal taps, may prevent ultimate blindness.

pital, three days later, the ears were completely dry and the drums normal.

One week later the child started to vomit again, and on the following day, June 22, there were six bouts of vomiting. The mother reported that he seemed apathetic and had complained of headache. The ear drums looked completely normal; there was no discharge, and an audiogram at that time showed essentially unimpaired hearing, in contrast to a hearing loss of 30 to 40 decibels four and a half months earlier.

Since the otologic findings were insufficient to account for the child's lethargy, he was sent to a pediatrician for consultation. The latter noted bilateral early questionable papilledema. Within two days the swelling of the disks had become definite, and the child was referred to Children's Hospital for neurologic and ophthalmologic evaluation. In view of the absence of other neurologic findings and the history of otitis media, a diagnosis of otitic hydrocephalus was taken into consideration. But while the ophthalmologist suggested immediate reduction of intracranial pressure, the neurosurgeon felt that the indications were not sufficiently clear-cut to warrant a spinal tap or decompression. As a roentgenogram at this time demonstrated clouding of the right mastoid, it was decided to perform mastoidectomy, and for the rest to keep a careful watch for further developments.

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On June 28, simple mastoidectomy was done. Upon exploration the roentgenographic diagnosis was confirmed: The mucosa in the cells was thickened, but no tissue breakdown or abscess formation was observed. The dural bone was exposed, seemed normal upon inspection, and was therefore not disturbed. Material for culture proved sterile on laboratory examination. Following the operation the child's condition was much improved.

In spite of the alleviation of symptoms papilledema persisted, and on July 6 the patient began to have visual disturbances. Two days later he vomited again. The temperature then was slightly elevated (99.4° F), and right internal strabismus was noted. However, all reflexes were normal. As vomiting persisted and strabismus became more pronounced the patient was again referred for neurologic examination. In addition to high-grade bilateral papilledema there appeared a mild discrepancy in knee and ankle jerks, more pronounced on the left than on the right. Both eyes showed an intermittent tendency to wander medially. The boy was alert and cooperative, but somewhat irritable. In view of the complex history, it was felt that cerebral abscess was a possibility and that ventriculography should be done.

The patient was admitted to Children's Hospital and lumbar puncture was performed. The cerebrospinal fluid pressure was considerably elevated; there were 2 leukocytes per cubic mm.; protein content was 7 mg. per 100 cc. On trephination of the skull the brain was found to be tense and the intracranial pressure greatly increased. By roentgenographic visualization it was observed that the ventricles were about twice their normal size, but completely symmetrical, without evidence of a defect indicative of a space-occupying lesion. Brain abscess was thus excluded, and on clinical grounds cerebellar abscess seemed unlikely. The neurologic diagnosis was therefore: Possible cerebral edema and thrombophlebitis, caused by (and perhaps still propagated by) otitis.

The presence of continued mastoiditis was disproved by a new set of roentgenograms of the mastoid bones. Consequently, left mastoidectomy was not considered necessary. The ears were frequently examined and always found to be dry and normal in every respect.

By the end of August the papilledema had increased to 4+ D, bilaterally. The pediatrician started medication with Diamox® (acetazoleamide) in an attempt to decrease intracranial pressure. At first the papilledema improved greatly. However, the effect of the drug was not sustained and it was discontinued after one month. A thorough study demonstrated that the child was highly sensitive to various allergens, but desensitization treatment proved only locally effective and did not change the course of the disease.

One month later, optic atrophy developed and the child was rehospitalized. A ventriculogram at that time showed no localized lesion. Daily spinal taps showed cerebrospinal fluid pressure varying between

300 and 500 mm. of water. As it was impossible to control the increased cerebrospinal fluid pressure by lumbar punctures alone, spinoperitoneal anastomosis was done in order to establish continuous drainage of spinal fluid. However, progress of optic atrophy could not be checked, and the child became blind. Despite intercurrent infection of the upper respiratory tract, the hearing remained normal. On the other hand, headaches increased in severity, and on clinical grounds a hidden intracranial tumor was suspected. A neurologist, consulted in April, 1955, proposed a sagittal sinus dye study and suggested, as a last resort, cauterization of the choroid plexus.

In the case presented in the foregoing the diagnosis of otitic hydrocephalus remained doubtful during the entire period of observation and treatment. It is precisely this fact, that signs and symptoms were inconclusive throughout, which may have prevented early countermeasures. The findings rather suggested an expectant attitude, based on the common experience that in most cases otitic hydrocephalus regresses slowly by itself and that spinal puncture is of little use in combating a greatly increased production of cerebrospinal fluid. Presumably the case represents an especially elusive instance of otitic hydrocephalus. But whatever the final diagnosis—and there may never be certainty of diagnosis even should autopsy be done ultimately—this case invited a discussion of the diagnostic and therapeutic problems inherent in otitic hydrocephalus.

DIAGNOSTIC AND THERAPEUTIC PROBLEMS

Terminology

Otitic hydrocephalus may not be so rare as it is usually assumed to be, particularly in mild, transient and subclinical forms. The extreme vagueness of signs and symptoms has prevented a clear-cut description of this complication of otitis media which would impress itself on otologists' minds. One writer on the subject²² called it a well-defined syndrome, while others³¹ were not even convinced of the existence of otitic hydrocephalus as a clinical entity.

This uncertainty is reflected in a thoroughly confusing terminology. Hamberger²¹ stated that it is the greatest problem to find a suitable name for the syndrome. But as no agreement has been reached to date, there is nothing left but to enumerate the various terms that have been used since Quincke's time. Quincke³⁵ included the condition in the larger group of serous meningitis. Passot³⁴ spoke of a "hypertensive meningeal state" and also used the term "meningeal hydrops." This description has more recently found favor with a group of ophthalmologists.²⁰ The term "otitic hydrocephalus" goes back to Symonds,⁴² who himself had formerly used other descriptions, like "pseudo-brain-abscess" or "non-

suppurative encephalitis." In order to eliminate the suggestion that the syndrome is due to an infectious intracranial disease, Davidoff and Dyke¹³ proposed the term "hypertensive meningeal hydrops." Other observers spoke of "ependymitis serosa," "meningismus," or "pseudo-tumor of the brain."⁴⁶ This latter term has been severely criticized; Kehrer²⁴ showed that what has been called "pseudo-tumor of the brain" can be produced by at least 22 different diseases and recommended that whenever the basic disorder cannot be reliably established it would be better to speak of "chronically increased intracranial pressure of unknown origin." Some neurosurgeons prefer the term "cortical thrombophlebitis,"²⁸ others "thrombosis of the dural venous sinuses."³⁶ As the symptom complex may follow not only otitis media but also nasopharyngeal and other infections, McAlpine²⁹ introduced the term "toxic hydrocephalus"; later, however, McAlpine distinguished between two forms of hydrocephalus—thrombotic or otitic hydrocephalus, and toxic hydrocephalus.³⁰ Another aspect of the disease is stressed by use of the term "allergic encephalopathy with papilledema."¹⁴ From a practical point of view, however, the author feels that it is best to retain the most commonly accepted term: Otitic hydrocephalus. As Williams⁴⁷ said many years ago: "The term, while not completely accurate, serves to keep otologists on the alert for its presence with otitis, and is therefore generally useful."

Pathologic and Etiologic Features

The terminologic difficulties have their root in the still undecided causes and pathologic features of otitic hydrocephalus. The essential finding is increased cerebrospinal fluid pressure, but it has not as yet been conclusively established how this phenomenon is brought about.

Formerly the answer was sought in two directions—increased secretion or decreased absorption of cerebrospinal fluid, or possibly a combination of these two factors.²¹ But in more recent years other explanations have been advanced, particularly what may be called the concept of dynamic equilibrium between cerebrospinal fluid pressure and cerebral blood flow,³⁷ and several theories stressing the mechanical origin of the condition. In the following the more important pathologic findings will be briefly reviewed, but only to the extent that they may contribute to a better understanding of the symptomatology and to the selection of treatment.

The assumption of increased secretion of cerebrospinal fluid is based on the finding of enormously elevated pressure when spinal and ventricular puncture is carried out, as well as on the development of papilledema, which is the only consistent sign of otitic hydrocephalus. There can be no doubt that hydrocephalus may occasionally be brought on by

overproduction of cerebrospinal fluid.²³ But the earlier theory that otitic hydrocephalus is always due to a functional disturbance of the choroid plexus²⁹ has become doubtful, in spite of a finding of congestion of the choroid plexus in one of the rare cases in which autopsy was done.⁴¹ The formerly held opinion that cerebrospinal fluid is mainly elaborated by the choroid plexus is now disproved,⁵ and it has been definitely demonstrated that fluid is also formed within the spinal subarachnoid space.⁶ But even the basis for the assumption of increased fluid production has been assailed. It is generally agreed that in otitic hydrocephalus the spinal fluid is not abundant, but that overproduction has been merely inferred from the finding of increased pressure.³¹ Indeed, Ford and Murphy¹⁷ assumed that there actually is diminution of secretion of cerebrospinal fluid in hydrocephalus of long standing. The blood supply of the choroid plexus is diminished by compression, they held; and the renewed rise of cerebrospinal fluid pressure following ventricular puncture was ascribed to hyperemia of the plexuses, brought on by sudden withdrawal of fluid resulting in an outpouring of large amounts of cerebrospinal fluid.

Next it was suggested that increased cerebrospinal pressure might be due to decreased absorption of cerebrospinal fluid. This theory was advanced by Symonds,⁴⁴ who indeed came to the conclusion that otitic hydrocephalus is symptomatic of thrombosis in a superior longitudinal sinus. He assumed that there is slow retrograde propagation of the thrombus, the mural spread affecting the arachnoid villi, but never resulting in complete obstruction. Symonds based his interpretation largely on observations at autopsy reported by Bailey and Hass.² The actual presence of creeping thrombosis in the longitudinal sinus has been convincingly visualized by means of sinography.¹⁸ In one autopsy¹⁷ it was demonstrated that the left lateral sinus was replaced by a fibrous cord with a few small vascular channels running through it; in another instance,²⁰ where the patient had died of an intercurrent disease, the thrombosis was most pronounced in the posterior half of the superior longitudinal sinus, and its onset was estimated as having occurred at the same time that first symptoms developed.

Occasionally blockage of the arachnoid villi can be shown at postmortem examination.²² But otitic hydrocephalus cannot be dependent upon obstruction of the big venous sinuses, for the result of the Queckenstedt test is never positive.¹² Furthermore it has been observed that lateral sinus thrombosis is not the complete explanation, because thrombophlebitis of the sinus is fairly frequent, while otitic hydrocephalus is unusual.³¹ More recently it was shown in studies with radioactive phosphorus that the tracer does not pass through the arachnoidal villi

and pacchionian granulations, but rather distal to that point, presumably through the capillaries and small veins of the pia arachnoid.¹ Blockage of the arachnoid villi might therefore have no direct influence on the absorption of cerebrospinal fluid. It has furthermore been demonstrated that absorption of fluid occurs to a higher degree in the spinal subarachnoid space than in the ventricle.⁶ It must be noted, however, that leading specialists³⁰ still uphold the theory that thrombosis of the superior longitudinal sinus leads to interference with absorption of cerebrospinal fluid.

Thrombosis of the sinuses, particularly of the superior longitudinal sinus, has been too frequently demonstrated in roentgenograms and postmortem examinations to be dismissed, even if the theory of disturbed absorption of cerebrospinal fluid is no longer maintained. It is then postulated that the increase in cerebrospinal fluid pressure comes about in a purely mechanical manner, and only when other sinuses are insufficient to compensate for obstruction of the one channel. Ray and Dunbar,³⁶ for instance, were able to show by means of a lateral venogram that thrombosis in the right transverse sinus does not lead to increased intracranial or intraspinal pressure when the left sinus provides an adequate channel for drainage of the venous blood from the superior sagittal sinus. On the other hand, the same obstruction may result in increased pressure when the remaining transverse sinus is inadequate to compensate for the one-sided obstruction. Inadequacy of the remaining sinus may be due to an abnormal anatomic arrangement, or again to residues from previous disease processes. Increase of intracranial pressure can be checked by the development of adequate vascular compensation.

The organism of the child, however, is less well prepared to provide such compensation through the development of collateral drainage channels,⁴ and this may be the reason why otitic hydrocephalus occurs almost exclusively in children and adolescents. Slow development of collateral circulation also accounts for the fact that increased intracranial pressure may persist for months or even years.¹²

Finally, increased cerebrospinal fluid pressure has been traced to changes in craniospinal blood volume. Ryder and co-workers³⁷ established that there exists a dynamic equilibrium of intracranial fluid volume, whether the pressure is high or normal.

The mechanism underlying otitic hydrocephalus has therefore not yet been definitely established. Indeed, it might well be that no one single cause can account for all cases, and that in some instances more than one mechanism may be at work to produce the ill-defined symptoms and signs of this disease.

The same clinical condition which is described as

otitic hydrocephalus may also be brought on by processes unrelated to disease of the ear. Thus a brief review of etiologic observations seems to be in order. Symonds⁴⁴ early recognized that this type of hydrocephalus can be due to other causes; he mentioned particularly infection of the umbilical vein, thrombophlebitis migrans secondary to perirectal abscess, infection starting in the glands of the jaw, and nasopharyngeal infection. Still earlier, Sheldon³⁹ reported a case of hydrocephalus which was traced to an attack of acute tonsillitis and which subsided following drainage of a peritoneal abscess due to hemolytic streptococcus. In other instances it may be impossible to discover any cause for the development of increased intracranial pressure and bilateral papilledema,²⁰ or it can only be ascribed to menstruation, postpartum state or head injuries. Occasionally the clinical manifestations seem to be essentially due to allergic reaction, in spite of a history of upper respiratory infections and otitis media.¹⁴

The etiologic relationship between otitis media and hydrocephalus is obvious when involvement of the meninges can be demonstrated upon mastoid operation. In one reported case, for instance, the sinus plate was found to be necrotic, and when the lateral sinus was exposed it proved to be considerably thickened and inflamed.⁴⁰ In another case of acute otitis media the dura of the lateral sinus was rough and granular; ten days later bilateral papilledema developed and the cerebrospinal fluid pressure was 300 mm., without any other accompanying signs.⁸

Again, the sinus may be covered with a thick layer of fibrin, while the bony plate covering the dura, as well as the dura itself are normal.²¹ In two cases, however, the changes brought on by mastoiditis were limited to increased vascularity of bone.¹⁹ Apparently such excessive vascularity, even in the absence of any pus, may cause increased tension in the dura mater, which Symonds⁴² found to have a somewhat more pinkish appearance than normal.

Brunner⁹ ascribed otitic hydrocephalus to a slight infection of the meninges, and suggested that intracranial structures respond to toxins from an adjacent focus of infection, even without the presence of gross involvement of the dura.¹⁰ Ersner and Myers¹⁶ sought the explanation in a reactive state of the meninges, produced by organisms outside of the dura. Other investigators assumed the existence of preformed channels or spaces, or actual passage of attenuated organisms into the cerebrospinal fluid spaces.⁴⁶

Again, it is not certain how the disease process in the ear proceeds to involve the meninges and to set up a reaction which finally terminates in otitic hydrocephalus. But the conclusion is unavoidable

that in almost all instances the virulence of otitis media and mastoiditis and the involvement of the dura are so marginal that extension of the disease can hardly be anticipated.

Symptoms and Signs

The signs and symptoms of otitic hydrocephalus are in the beginning slight, variable, and nonspecific, entirely in keeping with the ill-defined pathologic changes associated with the condition. The characteristic finding in all cases is increased cerebrospinal fluid pressure, which might rise as high as 600 mm. of water; the readings in most cases, however, are in the neighborhood of 300 mm. The various signs and symptoms of otitic hydrocephalus are all related to—and indicative of—such an increase of cerebrospinal fluid pressure. The only sign present in all cases is papilledema. Swelling of the optic disk is usually very pronounced, sometimes as much as 6 diopters. But papilledema, in turn, is no specific sign of otitic hydrocephalus. The diagnostician is bound to think in the first place of a space-occupying intracranial lesion, and otitic hydrocephalus can be suspected only after those more frequent intracranial changes have been eliminated by various specific procedures.

Papilledema is always bilateral, mostly symmetrical.¹² Symonds⁴³ considered early development of high-grade papilledema a decisive point in the differential diagnosis from cerebral abscess, but occasionally excessive cerebrospinal fluid pressure persists for months before papilledema or any other ocular signs appear.⁴⁰ Nevertheless, signs and symptoms related to the eyes are as a rule the earliest indication of otitic hydrocephalus, and ophthalmoscopic examination should immediately be performed whenever otitis media with or without mastoiditis does not clear up within the expected period. Other ocular complaints include diplopia, strabismus, paresis of the sixth nerve and amblyopia. In some reported instances the first hint was that a child had difficulties in reading; but it takes an observant parent to notice slight changes in the behavior of a young child who is unable to give a precise description of his discomforts and may react only by "crankiness" or by lethargy and withdrawal.

Other symptoms have been sporadically observed, but as a rule the patient is alert, has good appetite and never seems really sick. Headache is the most frequent complaint, yet by no means consistently observed. There may be vomiting, but it is not present in the majority of cases, which indicates that, in spite of increased fluid pressure, stimulation of the vegetative centers at the floor of the third and fourth ventricles is the exception.⁴ Occasionally a patient has giddiness. Neurologic signs may be absent altogether except for papilledema. Nielsen and Courville³³ observed that even complete occlusion of the

lateral sinus is not necessarily accompanied by cerebral symptoms, provided the inflammatory thrombus develops slowly.

Sometimes the first and only warning is earache³¹ or discharge of material from the ear²⁸ but, by and large, otologic complaints are rare. Before the introduction of chemotherapy and antibiotic therapy, fever of 100° F or more was occasionally reported,¹⁹ but this sign is no longer observed. In an exceptional case, hydrocephalus was preceded by a generalized scarlatiniform rash and was accompanied by pain and effusion in the larger joints.³⁹

The symptoms of otitic hydrocephalus are, thus, far from uniform; and, in addition, each symptom is likely to vary in severity.

Diagnosis

The symptoms of otitic hydrocephalus are so marginal and uncharacteristic that they will never suffice for a diagnosis of the condition. Whenever a clinician is confronted with this ill-defined picture in a child or adolescent with a history of upper respiratory infections, particularly otitis media with or without mastoiditis, he should follow the patient carefully and be on the lookout for early changes in the eyegrounds. As soon as beginning papilledema is demonstrated, specific tests become necessary.

The first step is to make roentgenograms of the mastoid region, which may possibly show some degree of clouding. The changes are often so slight that, in other circumstances, surgical intervention might hardly seem warranted. But together with related clinical and diagnostic findings, such minor changes in the mastoid are likely to be of etiologic significance. In this connection it must be stressed that the roentgenographic appearance of the mastoid may be altered through antibiotic therapy.³ The cell content often appears more translucent, and the bony structure more distinct than in patients who have not received antibiotics. Therefore, if antibiotics have been administered, the roentgenologist should be told. Cases have been reported in which no abnormality was seen in a roentgenogram, yet extensive necrosis of the sinus plate and the bone covering the superior fossa was demonstrated upon operative exposure of the mastoid.

The presence of papilledema calls for roentgenograms of the skull to exclude the possibility of a space-occupying lesion. Whenever the findings are inconclusive, an electroencephalogram is required. In the differential diagnosis it is particularly necessary to think of tumor of the posterior fossa.²⁹ Then a pneumoencephalogram is performed, with direct injection of the contrast medium into the ventricles.²⁷ This procedure serves not only to exclude localized lesions, but also provides significant information as to the presence of otitic hydro-

cephalus. In otitic hydrocephalus the ventricular system is normal in size, shape and position, and may even be smaller than usual.¹³ It must, however, be stated that in a number of cases of direct ventriculography, filling is unsatisfactory.²¹

Upon ventricular puncture it will be found that the intracranial pressure is slightly or even considerably elevated. It is, however, necessary to remember that elevation of cerebrospinal fluid pressure is not necessarily related to any clinical syndrome.³⁸ Furthermore, one determination of intracranial pressure is no more informative with regard to nervous system disease than a single reading of blood pressure in hypertension.¹⁷

The appearance and consistency of the cerebrospinal fluid that escapes at the time of ventricular puncture or that is withdrawn by lumbar puncture are of considerable diagnostic significance. According to Symonds,⁴² differentiation between otitic abscess and otitic hydrocephalus is mainly based on conditions observed upon examination of spinal fluid. Characteristically the appearance of the cerebrospinal fluid and its consistency on smear and culture are normal, or at least within the limits of permissible deviations. However, Symonds⁴⁴ observed that in some cases these typical conditions of the cerebrospinal fluid develop only after an initial period during which all the signs indicative of meningeal reaction are present. Erythrocytes, leukocytes and protein content may be increased, thus rendering the differentiation from cerebellar abscess at least temporarily doubtful. Occasionally the cerebrospinal fluid has a xanthochromic appearance, suggesting extravasation of blood into the arachnoid space.²² At other times the fluid is pink.²⁰ But such cases are the exception, and as a rule the conditions observed upon repeated puncture are within normal limits.

Lumbar puncture is performed as a diagnostic procedure only when the ventriculogram remains inconclusive. The indications and contraindications for this technique³² need not be further discussed.

If all the foregoing tests produce questionable results and the patient does not respond to treatment, roentgenographic visualization following injection of an opaque substance into the dural sinuses of the skull¹⁸ should be done in order to demonstrate possible obstruction.

TREATMENT

Treatment is aimed at lowering the cerebrospinal fluid pressure before papilledema results in irreparable optic atrophy and partial or total loss of vision. The most widely followed plan consists of subtemporal decompression followed by lumbar puncture, repeated daily if necessary.²¹ The effectiveness of

lumbar puncture has been doubted by proponents of the etiologic theory of increased fluid production.³¹ However, this procedure, when instituted early and carried through as long as increased fluid pressure persists, seems to be effective in most cases. The schedule is adjusted to the degree of papilledema, and when decompression has been performed the tension of this area may also serve as a guide for therapy.¹³ Enough spinal fluid should be withdrawn to reduce the elevated pressure to approximately one-half its initial value.²⁹ But drainage must be very slow, for quick withdrawal will cause headache. Whenever a fairly large amount of fluid is taken, the flow should be regulated in such a manner that the procedure extends at least over 30 minutes. As spinal fluid pressure is subject to considerable fluctuations, treatment must be continued until pressure readings are consistently low.

In spite of success of drainage by lumbar puncture the rationale of this procedure is by no means clearly established or commonly accepted. Many patients recover without any treatment whatsoever.¹² In other instances the disease remains uncontrolled in spite of daily lumbar puncture combined with other procedures.⁴⁵ Obviously the effectiveness of lumbar puncture depends on such variables as stage of the disease, virulence of the pathogenic organism, and vital resistance of the individual. Nevertheless, daily spinal puncture is advised in every case which has been conclusively or at least convincingly diagnosed as otitic hydrocephalus.

Other therapeutic measures proposed include: Dehydration by limitation of fluid intake and by giving saline cathartics¹³; incision of the dura mater in the temporal region in order to permit escape of fluids⁷; anticoagulant therapy (heparin and dicumarol) whenever thrombosis is suspected³⁶; and antiallergic therapy (benadryl).¹⁴ Elimination of a focus in the mastoid is mandatory. The choice is between either a conservative intervention in which the sinus is not opened but only freed from bone,²⁸ and a more radical procedure including incision of the dura and removal of the thrombus.⁴⁵ In a singular case,¹¹ vision was restored following decompression after the patient had been practically blind. When daily lumbar puncture is insufficient to control the elevated cerebrospinal fluid pressure, continuous drainage by various routes may be instituted. Penicillin does not seem to be effective in the treatment of otitic hydrocephalus.³¹

Successful treatment depends largely on early diagnosis promptly followed by therapeutic measures designed to lower the cerebrospinal fluid pressure. It is commonly recognized that the disease is insidious in its onset, with vague symptoms and inconclusive signs. All these diagnostic difficulties have been increased manifold since the introduction

of chemotherapy and antibiotic therapy as routine measures in otitis media. This applies by no means only to cases in which these drugs have been used indiscriminately or in insufficient amounts. Even when best medical judgment has been employed the recognition of intracranial complications, and particularly otitic hydrocephalus, becomes an intricate diagnostic problem.

Even when there are wide areas of healing, the infection may remain uncontrolled in relatively avascular portions. It has been stated that such a smoldering process has apparently an affinity for the sinus and dural plates, and frequently leads to meningitis and lateral sinus thrombosis.³ The antibiotics may fail to bring about immediate resolution of otitis media. The initial symptoms may disappear, but after discontinuation of antibiotic treatment the infection sometimes continues silently, with its real progress masked.¹⁵ It has even been stated that penicillin favors thrombus formation.⁴⁵ Of particular interest is a recently reported case in which septic mastoiditis was controlled by penicillin therapy which, however, did not prevent the development of hydrocephalus, probably due to obturating sinus thrombosis.⁴ There was no increase of temperature, but suddenly vomiting and retinal edema set in. Thus, the antibiotics are certainly no protection against otitic hydrocephalus. In another recent case otitis media proceeded in spite of antibiotic therapy to mastoiditis, even though myringotomy and mastoidectomy were performed and antibiotic coverage continued. High-grade papilledema developed, and all counter-measures could not prevent eventual loss of vision.⁴⁵ Under antibiotic therapy, therefore, seemingly controlled otitic infections may linger on without producing any significant symptoms until elevated intracranial pressure documents itself in papilledema and other ocular disturbances.

In the early days of chemotherapy it was recognized that the clinician had to learn an entirely new set of indications for surgical intervention in patients who had received sulfa drugs.²⁶ A similar change is required in the management of otitis media if the development of otitic hydrocephalus is to be prevented, or at least its incidence reduced. Antimicrobial therapy should be instituted only following myringotomy, and then on the basis of organism sensitivity.²⁵ Whenever mastoid operation is indicated it must be performed as meticulously and radically as before the advent of antibiotics.⁴⁵ There is no place for temporizing procedures once mastoiditis has developed.

In addition to these general rules, however, special precautions should be taken in patients with a history of recurrent infection of the upper respiratory tract, particularly otitis media and other ear

infections, allergic sensitivities and generally reduced resistance.

DISCUSSION

In a survey of published reports of cases it was noted that it was hardly ever a first attack of otitis media which progressed to otitic hydrocephalus. For instance, in a case presented by McAlpine²⁹ papilledema together with a cerebrospinal fluid pressure of 190 mm. developed in a girl on what is presumed to have been a toxic basis; six weeks after recovery the patient had a head cold and sore throat, with recurrence of papilledema and a rise of cerebrospinal fluid pressure to over 300 mm.

McAlpine observed exacerbation of hydrocephalic symptoms in three cases, and he expressed the opinion that with the initial attack of hydrocephalus a patient becomes hypersensitive and that any subsequent minor recurrence leads to pronounced allergic reaction and increased hydrocephalic symptoms. Without endorsing the theory of allergic sensitivity, Bauer⁴ came to an essentially similar interpretation. He explained development of hydrocephalic disturbances following septic mastoiditis and mastoidectomy on the basis of a preexisting mural sinus thrombosis; then, under the influence of penicillin, the development of obturating sinus thrombosis.

It remains an open question whether this interpretation is correct or another explanation would be preferable: Pathologically it has been demonstrated that the course of otitic hydrocephalus depends on the availability (patency) of collateral channels. When, due to an earlier disease, the remaining channels are less able to compensate for the occluded sinuses, a subsequent attack is more likely to lead to dire consequences. The clinician will therefore need a thorough history of the patient, particularly of recurrent upper respiratory tract infections, not only infections involving the ear. If there is such a history in a child or adolescent—the age group to which for all practical purposes otitic hydrocephalus is restricted—the possibility that this complication might develop must be thought of immediately.

In the evaluation of the patient's history, allergic sensitivity should be carefully taken into consideration. Hydrocephalus of the type occasionally developing after otitis media may to all appearances be brought on by other etiologic factors, mainly allergic sensitivity. It is entirely possible that on such an allergic basis the meninges may have undergone changes comparable to those following previous infections of the middle ear. At any rate, the history of each child or adolescent with otitis media must be carefully evaluated, with the question uppermost in the diagnostician's mind whether the present

attack might not represent an intercurrent disease in the latent development of hydrocephalic disturbances. In this respect it is important to note that in some patients the repeating episodes are spaced at great intervals, with the patient free of signs or symptoms between attacks.

It may well be that an allergic diathesis is responsible for the reduced antibacterial effect even of antibiotics that may have been shown in laboratory tests to be highly specific for the organism present. But this problem related to natural immunity reaction cannot be further discussed in the present context. Anyway, in children and adolescents with a history of recurrent otitis media and other infectious diseases of the ear and upper respiratory tract, with or without a concomitant history of allergic sensitivity, it is unwise to rely too much on the effectiveness of chemotherapy and antibiotic therapy. Treatment should be planned along classical lines, with myringotomy and—if necessary—mastoidectomy, as radical as indicated by the conditions observed in each individual case.

Postoperatively the patient must be kept under closest observation, with meticulous attention to any possible signs and symptoms which in patients without such a history might be considered trivial. Slight complaints, like lethargy, dizzy spells and blurring of vision, are the first indications of threatening development of otitic hydrocephalus. The otologist should ask the patient and his parents concerning any such transient incidents. Even though otitis media has completely cleared up by any ordinary standard, the patient should be observed at frequent intervals for a number of weeks. At each visit an ophthalmoscopic examination should be done, in addition to hearing tests and routine inspection of the ear. Any changes in the eye-grounds call for immediate neurologic consultation.

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REFERENCES

1. Adams, J. E.: Tracer studies with radioactive phosphorus (P^{32}) on the absorption of cerebrospinal fluid and the problem of hydrocephalus, *J. Neurosurg.*, 8:279-288, May 1951.
2. Bailey, O. T., and Haas, G. M.: Dural sinus thrombosis in early life: Recovery from acute thrombosis of the superior longitudinal sinus and its relation to certain acquired cerebral lesions in childhood, *Brain*, 60:293-314, Sept. 1937.
3. Barrett, J. H.: Acute mastoiditis masked by penicillin therapy, *Ann. Otol., Rhin. and Laryng.*, 56:134-140, March 1947.
4. Bauer, E.: Hydrocephalic disturbances after mastoidectomy, *Monatschr. f. Ohrenheilk.*, 87:263-268, Oct.-Dec. 1953.
5. Bertrand, L., and Salvaing, J.: The choroid plexus in meningeal tuberculosis, cited by: Spiegel-Adolf, M.: *Progr. Neurol. and Psychiat.*, 7:275, 1952.
6. Boldrey, E. B., Low-Beer, B. V. A., Stern, W. E., and Adams, J.: Formation and absorption of fluid in the spinal

- subarachnoid space in man, *Bull. Los Angeles Neurol. Soc.*, 16:225-230, June 1951.
7. Bourgeois, R.: Acute hydrocephalus of otitic origin, *Ann. d'oto-laryngol.*, 63:229-230, May-June 1946.
8. Bradbeer, W. H., and Gibson, P. C.: A case of otitic hydrocephalus, *J. Laryng. and Otol.*, 52:624-625, Sept. 1937.
9. Brunner, H.: *Intracranial Complications of Ear, Nose and Throat Infections*, Chicago, The Year Book Publishers, Inc., 1946, p. 294.
10. Brunner, H.: Otogenous edema of the brain, *Ann. Otol., Rhin. and Laryng.*, 58:997-1012, Dec. 1949.
11. Cairns, H.: Abscess of the brain, cited by: Horowitz, S., Ref. 22.
12. Dandy, W. E.: Intracranial pressure without brain tumor, *Ann. Surg.*, 106:492-513, Oct. 1937.
13. Davidoff, L. M., and Dyke, C. G.: Hypertensive meningeal hydrops. A syndrome frequently following infection in the middle ear or elsewhere in the body, *Am. J. Ophth.*, 20:908-927, Sept. 1937.
14. Devanney, J. W., Jr., and Shea, J. H.: Allergic encephalopathy with papilledema, *A.M.A. Arch. Neurol. and Psychiat.*, 68:791-793, Dec. 1952.
15. Dingley, A. R.: Acute otitis media, in: *Modern Trends in Diseases of the Ear, Nose and Throat*; ed. Ellis, M. New York, Paul B. Hoeber, Inc., 1954, pp. 144-152.
16. Ersner, M. S., and Myers, D.: Otitic hydrocephalus with a suggestion as to etiology, *Ann. Otol., Rhin. and Laryng.*, 45:553-566, June 1936.
17. Ford, F. R., and Murphy, E. L.: Increased intracranial pressure; a clinical analysis of the causes and characteristics of several types, *Bull. Johns Hopkins Hosp.*, 64:369-398, 1939.
18. Frenckner, P.: Sinography: A method of radiography in the diagnosis of sinus thrombosis, *J. Laryng. and Otol.*, 52:350-361, May 1937.
19. Garland, H. G., and Seed, G. S.: Otitic hydrocephalus, *Lancet*, 2:751-753, Sept. 30, 1933.
20. Giller, H., and Cogan, D. G.: Papilledema as the outstanding sign in meningeal hydrops, *A.M.A. Arch. Ophth.*, 48:557-566, Nov. 1952.
21. Hamberger, C. A.: On "otitic hydrocephalus," *Acta Oto-Laryng.*, 34:11-18, Jan.-Feb. 1946.
22. Horowitz, S.: Otogenic intracranial hypertension, *J. Laryng. and Otol.*, 63:363-381, July 1949.
23. Kahn, E. A., and Luros, J. T.: Hydrocephalus from over-production of cerebrospinal fluid, *J. Neurosurg.*, 9:59-67, Jan. 1952.
24. Kehrer, F. A.: To the problem of "pseudotumor cerebri." *Deutsch. Zeitschr. f. Nervenheilk.*, 160:1-9, 1949.
25. Lederer, F. L.: The Maginot Line of otology; dependence on antibiotics in suppurative middle ear disease; facts and fancies, *A.M.A. Arch. Otolaryng.*, 52:533-537, Oct. 1950.
26. Lillie, H. I.: Personal communication, cited by: Williams, H. L., Brown, A. E., Herrell, W. E., and Ralph, R. D.: Sulfonamide therapy for acute otitis media and mastoiditis, *Ann. Otol., Rhin. and Laryng.*, 50:336-348, June 1941.
27. Lups, S., and Haan, A. M. F. H.: *The Cerebrospinal Fluid*, New York, Elsevier Publ. Co., 1954, p. 52.
28. Martin, R. J.: A case of otitic hydrocephalus, *J. Laryng. and Otol.*, 67:695-698, Nov. 1953.
29. McAlpine, D.: Toxic hydrocephalus, *Brain*, 60:180-203, June 1937.
30. McAlpine, D.: Thrombotic and toxic forms of hydrocephalus, cited by: Yaskin, J. C., and Rupp, C.: *Progr. Neurol. and Psychiat.*, 9:164, 1954.
31. McKenzie, W.: A case of otitic hydrocephalus, *J. Laryng. and Otol.*, 62:391-393, June 1948.
32. Merritt, H. Houston, and Fremont-Smith, F.: *The Cerebrospinal Fluid*, Philadelphia, W. B. Saunders Co., 1937, p. 76.

33. Nielsen, J. M., and Courville, C. B.: Intracranial complications of otogenous thrombosis of the lateral sinus, *Ann. Otol., Rhin. and Laryng.*, 46:13-38, March 1937.

34. Passot, R.: Meningitis and meningeal states of aseptic origin, cited by: Symonds, C. P., Ref. 42.

35. Quincke, H.: Serous meningitis and related conditions, cited by: Symonds, C. P., Ref. 42.

36. Ray, B. S., and Dunbar, H. S.: Thrombosis of the dural venous sinuses as a cause of "pseudotumor cerebri," *Ann. Surg.*, 134:376-386, Sept. 1951.

37. Ryder, H. W., Espey, F. F., Kimbell, F. D., Penka, E. J., Rosenauer, A., Podolsky, B., and Evans, J. P.: The mechanism of the change in cerebrospinal fluid pressure following an induced change in the volume of the fluid space, *J. Lab. Clin. Med.*, 41:428-435, March 1953.

38. Ryder, H. W., Rosenauer, A., Penka, E. J., Espey, F. F., and Evans, J. P.: Failure of abnormal cerebrospinal fluid pressure to influence cerebral function, *A.M.A. Arch. Neurol. and Psychiat.*, 70:563-586, Nov. 1953.

39. Sheldon, J. H.: Serous meningitis of allergic nature, *Lancet*, 1:798-800, April 15, 1933.

40. Smith, A. T., and Mirmelstein, A.: Otitic hydrocephalus, *Ann. Otol., Rhin. and Laryng.*, 58:275-279, March 1949.

41. Smith, C. H.: Otitic hydrocephalus, with report of a case, *Laryngoscope*, 44:931-934, Dec. 1934.

42. Symonds, C. P.: Otitic hydrocephalus, *Brain*, 54:55-71, April 1931.

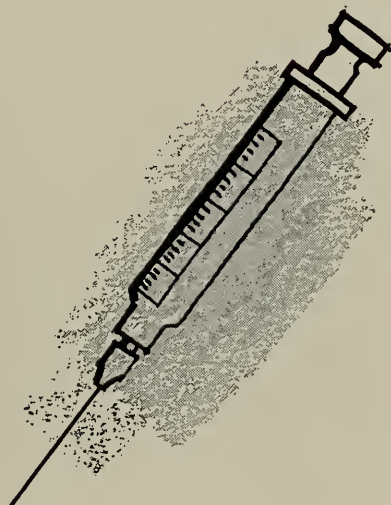
43. Symonds, C. P.: Otitic hydrocephalus: A report of three cases, *Brit. Med. J.*, 1:53-54, Jan. 9, 1932.

44. Symonds, C. P.: Hydrocephalic and focal cerebral symptoms in relation to thrombophlebitis of the dural sinuses and cerebral veins, *Brain*, 60:531-550, Dec. 1937.

45. Tamari, M., and Henner, R.: Otogenic intracranial complications in the "antibiotic era," *Ann. Otol., Rhin. and Laryng.*, 62:27-35, March 1953.

46. Warrington, W. B.: Intracranial serous effusions of inflammatory origin, cited by: Davidoff, L. M., and Dyke, C. G., Ref. 13.

47. Williams, H. L.: The underlying factors concerned in otitic hydrocephalus, *Ann. Otol., Rhin. and Laryng.*, 47: 670-714, Sept. 1938.



Cobalt-60 Teletherapy of Intra-oral Cancer

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THIS IS A PRELIMINARY REPORT of three years' experience with cobalt-60 teletherapy in the treatment of intra-oral cancer. Since the longest period of observation of a patient so treated is two and one-half years, neither cure nor permanent arrest can be said to have been brought about. However, the consistency of response and disappearance of primary lesion with cobalt-60 teletherapy is believed to be significant.

Past experience, including 30 years of work by one of the authors (W.E.C.), has given adequate opportunity to observe the effects of radiation both on the primary growth and upon the patient host. The authors used interstitial applicators such as glass radon seeds, gold radon seeds, removable platinum radon needles, and low-intensity radium element needles, as well as radium element dental molds (made at times in collaboration with a dentist), low voltage x-ray therapy through intra-oral cones, and combination of low voltage intra-oral x-radiation complemented by external irradiation at 200 or 250 kilovolts.

With all of these methods there have been disappearances of primary lesion, and in a few cases there have been five-year arrests of disease. However, all of these methods in some instances have produced painful ulceration which healed slowly or not at all. Likewise, bone necrosis in the mandible, hard palate, or other bony structures has been a not infrequent complication.

In the treatment of intra-oral cancer, as in the treatment of new growths elsewhere, the extent of the lesion is the most important factor in determining prognosis. Rarely will radiation therapy of any type control the primary growth if bone infiltration and necrosis have taken place.

Large cobalt-60 irradiations have been available for only a few years. A teletherapy unit of 1,080 curies was installed at the Los Angeles Tumor Institute in 1952, approximately a year after two similar units had been installed in Canada. The details of construction of this unit have been published previously.³ It is cylindrical, 3.5 cm. in diameter and 4.3 cm. long. Lead collimators are available to give treatment portals 10 cm. by 10 cm., 10 cm. by 15

• Forty patients with intra-oral cancer were given cobalt-60 teletherapy upon the primary lesion.

Among the physical advantages of this method are the more precise direction of the beam, reduced scatter and lessened skin and bone effects. The period of observation of patients treated has not been long enough to warrant discussion of cure or permanent arrest, but the consistency and regularity of disappearance of the primary lesion was significant. The authors believe that for intra-oral cancer, cobalt-60 teletherapy should be used before radical surgical procedures are proposed.

cm., and 5 cm., 7.5 cm., and 18 cm. circles. Steel cones fix the treatment distance at 70 cm. A brass filter at the end of the cone absorbs the secondary beta rays from the cone and the collimator to reduce skin reaction.²

Among the physical advantages of high energy radiation for deep-seated lesions are increased forward-scatter, and decreased back-scatter and side-scatter. The forward-scatter reduces skin reaction, since maximum ionization is achieved with electron equilibrium about 5 mm. below surface. The increased forward-scatter and decreased back-scatter increase the depth dose relatively and absolutely. As side-scatter is reduced and the beam more sharply demarcated, there is less irradiation of normal tissue at the margin of the beam, and the isodose curves are flatter and more uniform. In addition, with higher energy levels, bone and soft tissue absorption approach a 1:1 ratio. Avoiding the higher ratio associated with lower energy beams reduces the danger of bone damage and necrosis.¹

In all, 40 patients with intra-oral cancers were treated with cobalt teletherapy. The results are shown in Table 1.

The patients were treated with 10 by 10 cm. opposing portals or opposing 10 by 15 cm. portals used to include the cervical nodes. A daily dose of 300 r in air (240 r tumor dose) alternating right and left fields was given until a tumor dose of 2,400 r was reached—in two weeks, treating five days a week. Mucositis appeared at that stage and the daily dose was reduced to 200 r or 150 r in air (tumor dose of 160 r or 120 r), and treatment was continued at that rate until a total tumor dose of about 6,500 r was reached—in a period of from seven to eight weeks. The mucositis cleared while treatment was

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TABLE 1.—Initial Response* to Cobalt-60 Teletherapy of Intra-Oral Cancer at Various Sites

Stage of Lesion	Site of Lesions								
	Floor of Mouth			Base Tongue, Hypopharynx			Tonsil, Soft Palate, Pharynx		
	Good	Poor		Good	Poor		Good	Poor	
Early.....	8	7	1	4	4	0	7	7	0
Late.....	6	1	5	7	3	4	8	3	5
Total.....	14	8	6	11	7	4	15	10	5

* "Good" indicates complete disappearance of the lesion at conclusion of therapy; "poor," any evidence of residual tumor.

* "Good" indicates complete disappearance of the lesion at conclusion of therapy; "poor," any evidence of residual tumor.

going on. The maximum skin reaction, dry epidermitis, was usually reached at about the fourth week. No wet desquamations occurred. Most of the patients were ambulatory and many were able to continue their occupations while undergoing treatment. In many cases antibiotics were given by mouth during the peak of mucous membrane reaction. High-protein, high-carbohydrate, multi-vitamin liquid diet supplements are advocated. In some patients with sensitive mucous membranes, often due to hypovitaminosis and heavy use of tobacco and alcohol, acute mucous membrane reaction necessitated early reduction of daily dosage and prolongation of overall treatment time. Ulceration of the mucosa persisted in only one case in the series. The patient had advanced disease including extension into parotid gland and cervical node metastases at the time treatment was begun. He was alive without demonstrable tumor 18 months after completion of therapy. In one patient, who had tumorous invasion of the mandible with osteomyelitis, the irradiation seemed to do damage to the bone and the disease was not controlled. Although many of the patients had carious teeth, no extractions were done before treatment. The radiation did not cause bony destruction around the teeth.

In some cases palpable nodes within the treatment fields disappeared, but as biopsy was not done before treatment it is not known whether or not they were cancerous. Neck dissection was not done unless nodes were palpable, but the authors believe it should be done if nodes remain palpable or become

enlarged after the radiation reaction on the skin has abated.

Results of irradiation in the treatment of large intra-oral cancers (5 cm. or larger) in the past have been so uncertain and unsatisfactory that in recent years the more radical operative procedures—removal of the entire jaw, floor of mouth and the tongue—have been used extensively. It is admitted that in many cases the disease recurs even after these extensive operations. Many patients, fearing they would be unable to appear before the public and that their livelihood would be gone, refuse to undergo such operations.

Although thus far only initial response of tumors and surrounding normal tissue to cobalt-60 teletherapy has been observed, the authors believe that intra-oral lesions should be treated with radiation primarily, and that radical operation should be reserved for the lesions that do not respond. The method of irradiation described does not preclude subsequent radical operation, particularly if the surgical procedure is carried out before late fibrosis occurs.

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REFERENCES

1. Hine, G. J.: Scattering of secondary electrons produced by r-rays in materials of various atomic numbers, *Phys. Rev.*, 82:755-756, June 1951.
2. Johns, H. E.: *Radiation Therapy: Depth Dose*. Medical Physics, Vol. II, 1950, Year Book Publishers, Inc., Chicago, pp. 790-792.
3. Neil, R. H., Costolow, W. E., and Meland, O. N.: Design and construction of a simple applicator for 1,000 curies of cobalt-60, *Radiology*, 61:408-410, Sept. 1953.

Glutethimide—A New Nonbarbiturate Hypnotic

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BECAUSE PREVIOUS INVESTIGATIONS with a new anti-convulsant, nonbarbiturate compound, glutethimide (Doriden®), which chemically is ethyl-a-phenyl-glutarimide, showed that it depressed the central and autonomic nervous systems, question arose as to whether it might not also be active as an hypnotic. A study was made to find out.

Observations were made on two series of mildly disturbed, transient inpatients who were in the care of the Psychiatric Service of Los Angeles County General Hospital. Each series was composed of patients who requested a "sleeping pill" but who were not clinically in any serious need of sedation. In the first series, patients were given Doriden, 0.5 gm., or pentobarbital, 0.09 gm., or a placebo—presumably according to random selection. After completion of the study it was learned that members of the nursing staff, aware of the nature of each pill, had sometimes selected patients for the placebo who wanted a "sleeping pill" but appeared in little or no need of one, and that they had also sometimes given an "active" drug if the patient seemed upset or fretful. In the second series, the nurses could not identify the placebo and the patients were randomly distributed into the three groups. In the second series the two drugs were given in twice the dose used in the first series. A total of 175 patients received the drug on one or more occasions.

All patients on the Psychiatric Service are confined at night and are observed at regular hourly intervals by the nursing staff. In this study a careful record was kept by the nurse of whether the patient appeared to be awake at each of eight observation periods at hourly intervals.

RESULTS

Comparison of the control (placebo) groups of the two series shows that the controls of Series 1 were considered to be asleep on a significantly larger number of occasions than the controls of Series 2. the means being respectively 7.02 and 6.51 ($t=3.4$, $p=\text{less than } .01$). This is consistent with the biased selection of patients for the placebo group of Series 1, and suggests two things: (1) the

• A new anticonvulsant, nonbarbiturate compound, Doriden (ethyl-a-phenyl-glutarimide) was studied for clinical activity as a hypnotic drug in mildly disturbed patients on the acute Psychiatric Service of Los Angeles County General Hospital. It was found to have approximately the same hypnotic activity as pentobarbital in the dosages recommended (1 gm. Doriden=200 mg. pentobarbital).

placebo group in Series 1 is in no sense a "control" for the treated groups in this series, and (2) the bias favoring sleep in the placebo group also favors wakefulness in the treated groups of Series 1.

It was therefore felt that the treated groups in Series 1 might be compared with the placebo group in Series 2, but that the bias affecting the former would tend to prejudice reports as to the hypnotic effect of either of the drugs used.

The reported effect (Series 1) of Doriden, 0.5 gm., did not differ significantly from that of pentobarbital, 0.09 gm., nor was there a significant difference between them in twice that dosage (Series 2). The conditions associated with both drugs in both series did significantly differ from the conditions associated with Series 2 controls (t values ranging from 2.3 to 6.0 for the eight differences between these four treatment groups and the control group at the two times shown in Table 1).

The differences between Doriden and pentobarbital in Series 1 and in Series 2 were trivial and not significant (t values ranged from 0.2 to 1.0).

With respect to the increased sleep with increased dosage (Series 1 compared with Series 2), it must

TABLE 1.—Results in the Eight-hour Period and in the First Five Hours, Showing Number of Intervals at which Patient Appeared Asleep

Treatment Series	Number of Patient-Nights	Eight Hours		First Five Hours	
		Average	$V_{\bar{x}}^*$	Average	$V_{\bar{x}}^*$
Placebo (2nd series).....	129	6.51	.0139	3.95	.0074
Pentobarbital (0.09 gm.)	209	6.93	.0091	4.22	.0065
Pentobarbital (0.18 gm.)	58	7.38	.0206	4.67	.0069
Doriden (0.5 gm.).....	340	6.95	.0051	4.33	.0051
Doriden (1 gm.).....	56	7.29	.0198	4.57	.0084

From the Los Angeles County General Hospital, Los Angeles 33. Ciba Pharmaceutical Products, Inc., supplied the Doriden used in this study.

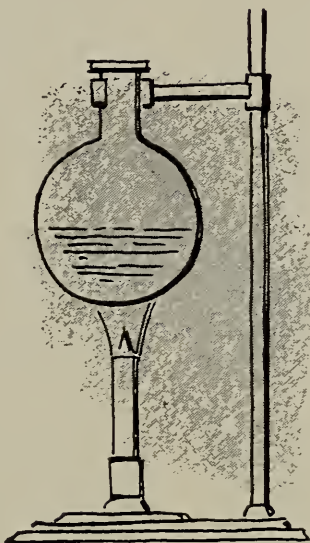
Submitted May 12, 1955.

* $V_{\bar{x}} = \frac{\sum (x - \bar{x})^2}{n(n-1)}$, where $V_{\bar{x}}$ is variance of the mean, x is the number of intervals recorded as asleep, \bar{x} is the mean, and n the number of patient-nights.

be noted again that the treatment groups in Series 1 were biased in favor of wakefulness. The differences observed, while statistically significant, cannot therefore be clearly attributed to dosage rather than to bias, although it would be reasonable to expect dosage-response relations of the general kind observed.

With respect to side effects, one patient complained of excessive sleepiness the afternoon following his fourth night on Doriden (0.5 gm. each evening), and in one patient jaundice of unknown cause developed; it cleared spontaneously in eight days.

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Craniocerebral Injuries

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THE PURPOSE of this presentation is to review again the major types of injuries to the brain, the important symptoms and the danger signals, and the recent developments in management.

Cerebral concussion is the least serious of brain injuries. There is relatively little injury to the brain, and often the patient does not lose consciousness. When examined shortly after the concussion takes place the patient will be oriented and no pathologic-neurologic signs will be present. There may be innumerable subjective complaints, but the majority of patients make a complete and rapid recovery.^{1, 13}

The postconcussion syndrome is a definite entity, and the complaints are due to injury. Three definite factors contribute to the symptomatology referred to as the postconcussion syndrome.

1. Persistent headache, often beginning in the suboccipital area and radiating forward, is common in patients who have had concussion. It is associated with tenderness and a variable degree of spasm of the suboccipital muscles. In addition, pain is evoked by palpation over the greater occipital nerve, on one or both sides. These pains are due to the associated sprain of the cervical spine with resultant radiculitis of the upper cervical roots.^{4, 10} Rarely is any abnormality noted in spinal x-ray films.

2. Dizziness and feeling of instability is most often present in patients who struck the occiput against a solid object in a fall backward.⁶

Persons falling backward are unable to utilize the postural, labyrinthine and optical righting reflexes, and the result is more severe trauma to the vestibular and labyrinthine apparatus. After concussion of that kind there may be variable disturbance in balance and gait closely akin to that associated with labyrinthitis.⁹

3. The third factor in "postconcussion syndrome," characterized by lightheadedness, chronic fatigue, insomnia, restlessness and a feeling of inadequacy and insecurity, is usually noted in patients with lesser injuries and usually without even a period of unconsciousness. This group of symptoms is occasioned by a fright reaction, followed by the exhaustion syndrome as originally described by Seele.¹² This is best illustrated and contrasted by citing two kinds of trauma: One kind is severe

• The postconcussion syndrome is a definite entity, and the patient's complaints are due to legitimate injury. The following three factors contribute to the symptomatology:

1. Headaches, caused by the associated sprain of the cervical spine with resultant radiculitis—giving rise to muscle spasm and suboccipital headaches.

2. Vertigo, due to trauma of the vestibular and labyrinthine apparatus.

3. A vasomotor imbalance and instability resulting from the reaction to "stress."

In treatment of an unconscious patient great care must be taken to prevent anoxia and to balance the fluids and electrolytes.

If coma develops following brain injury, hemorrhage into the cerebellar fossa as well as above the tentorium must be considered.

injury with prolonged unconsciousness; the other is the trauma of narrow escape. The patient with the severe injury and prolonged unconsciousness does not even remember the accident and makes prompt and complete recovery, while the man who has had a narrow escape may dwell on the details of the near-calamity until he becomes invalided.

These factors in the production of the postconcussion state are of great importance. They are points of contention in the medico-legal aspects of the subject. Physicians often become involved when requested to express expert medical opinion as to the extent of injury in such circumstances, for the patient often is accused of "litigation neurosis."

Newspapers carry many accounts of death caused by a fractured skull. Yet no one has ever died of a fracture of the skull. Indeed, "skull fracture" is a term so often misinterpreted that it should be abolished, for misunderstandings of its full significance (or lack of it) leads indirectly to thousands of deaths a year in the United States. A patient with fractured skull may have only a minor injury to the brain, whereas a severe contusion, and especially injury to the brain stem, often occurs without fracture of the skull.¹¹ The misunderstanding as to the meaning of "skull fracture" and as to the significance of the condition stems from erroneous interpretation as to the cause of death as expressed by the "autopsy surgeon." The misdiagnosis at autopsy is very serious, for it teaches the average physician to seek for x-ray evidence of fracture and, when none is found, "he, as well as the patient's

Presented before the Section on Psychiatry and Neurology at the 84th Annual Session of the California Medical Association, San Francisco, May 1-4, 1955.

family, is lulled into a false sense of security about the patient's condition and degree of his injuries."⁸

Postmortem examination of an injured brain must include sections through the brain stem, and, if necessary, histopathologic study of specimens.

Of course a linear fracture crossing the meningeal groove in the temporal area, a condition more often seen in association with less severe injury of a child, may tear the meningeal artery and bring about epidural hemorrhage within a few hours. The roentgenologic technique of the physician who first examines a patient may be inadequate to show a break of this kind, or he may not have the special experience or knowledge needed to evaluate it properly.

Occasionally, fracture of the skull involves a paranasal sinus, and the development of infection—or, less commonly, of intracranial aerocele—then is a possibility.

A far more dangerous injury than fracture of the calvarium is the absence of fracture in an injury that causes violent movement of the entire cranial contents, either by the mechanism of "skull deformation, brain displacement or transmitted waves of force through the brain."⁷ When the skull is fractured by an object striking it, the force of the blow is to a degree spent in the fracturing, and thereby lessens the force of movement transmitted to the entire calvarium.

Cerebral contusion presents a problem in careful management of an unconscious patient—once the diagnosis is established. Hemorrhage requires exact diagnosis and prompt surgical intervention.

Following is a case report which will emphasize the ever-changing development and capriciousness in the progress of a severe head injury and indicate the steps to be taken for survival of the patient.

A man 62 years of age was thrown from a moving vehicle during a collision. He landed some 30 feet away, his head striking a curbstone. When examined, two and a half hours after injury, he was in deep coma; scalp lacerations were present over the right parietal area; blood and cerebrospinal fluid were leaking from the right ear; a local contusion was present over the anterior chest wall and definite crepitus was palpable over that area. The patient was lying on his back and the tongue partially obstructed breathing and sometimes stopped it for a moment. Breathing would then resume with a forceful expulsion resembling (to the uninitiated) Cheyne-Stokes respiration.

The temperature was 96° F rectally. The skin was cold; pulse rate 96 and blood pressure 98/70 mm. of mercury. Upon neurological examination, peripheral facial paralysis on the right was noted. There was motor weakness of the left arm and hyperreflexia in both the left leg and left arm. Babinski's

sign was present on the left. The pupils were small and equal.

The diagnosis was cerebral contusion, compound skull break with spinal fluid leak, crush injury of the chest and shock. Treatment consisted of warm blankets, infusion of 5 per cent glucose solution, the placement of an adequate airway and occasional nasopharyngeal suction. The patient was placed in an oxygen tent. The abdomen was soft. Catheterization yielded 250 cc. of clear amber urine.

The patient was not disturbed for spinal punctures or x-ray studies. The scalp was repaired the following morning when shock had abated. A plain film of the chest was taken and several fractures of ribs on the right side were observed. The patient remained unconscious for eight days.

Feeding was carried out through a nasal tube. There was gradual improvement and the strength returned in the upper left extremity. Roentgenographic studies of the skull then revealed an extensive linear fracture extending from the right parietal area downward into the base and passing through the internal acoustic meatus. The pineal shadow was not visible. Fracture of the right acromioclavicular joint, fracture of the carpal bones in the right hand, and fracture of the right clavicle were also observed roentgenographically.

The patient gradually improved and became ambulatory in six weeks. Babinski's sign was no longer present. Although alert, the patient was still confused and disoriented. A spinal puncture was done. The pressure was 200 mm. of water and the fluid was faintly xanthochromic. No abnormality was noted in a fundoscopic examination. Reflexes were still hyperactive on the left. Although there remained some suspicion of subdural accumulation of blood, in view of his general improved condition the patient was permitted to go home, still under careful observation. Ten days later, he became confused and began dragging his left leg. Upon examination, definite motor weakness of the left upper and lower extremity was noted, and Babinski's sign was present. The pupils remained equal and upon fundoscopic examination no evidence was seen of increased intracranial pressure. An electroencephalogram showed amplitude asymmetry over the left hemisphere. At operation an encapsulated subdural hematoma was removed from over the left hemisphere. The patient eventually recovered.

This case illustrates the following principles, which have been stressed by other observers:

The Treatment of Shock

Rarely is shock associated with injuries of the brain alone, and careful examination should always be made for injuries of the chest and abdominal

viscera.² Most frequent of these are: Rupture of the spleen in upper abdominal injuries and rupture of the urinary bladder, prevalent especially in motorcycle accidents. A simple procedure often overlooked is diagnostic catheterization.

Careful observation will often reduce the amount of handling of a critically injured patient. It is wise to refrain from disturbing the patient for roentgen studies and spinal puncture until he has rested and his condition has stabilized.

The Prevention of Anoxia

An open respiratory passage for adequate oxygenation of the brain is mandatory for a patient in coma. A deeply comatose patient, often lying on his back, may aspirate blood, mucus or vomitus and the anoxemia caused by inadequate respiratory exchange may do more harm to the brain than was done by the original injury. Echols³ expressed belief that cerebral edema in such cases is caused by anoxia rather than by the cerebral injury. One should not hesitate, therefore, to perform tracheotomy in a patient in the condition described.

Fluid and Electrolyte Balance

Fluid balance must, of course, be maintained by administration of about 2,500 cc. of fluid in a 24-hour period. Better yet, a nasal stomach tube is an excellent way of providing the patient with frequent small feedings; in this way, the protein, fluid and electrolyte needs, as well as vitamin therapy, may easily be supplied.

Hematomas

The various types of hemorrhage must be kept in mind. An epidural (meningeal) hematoma or a subdural hemorrhage usually develops within several hours after the injury, while a chronic subdural hematoma may take several weeks to develop.

It is well to remember that in a patient unconscious from cerebral contusion, hematoma may develop without the classical feature of a lucid interval, since the long period of coma associated with the severe injury overlaps the lucid interval period.⁵ The development of a hemorrhage requiring surgical intervention may be suspected when an unconscious patient becomes more restless, has sudden temporary slowing of the pulse, increase in pulse pressure and/or aggravation of focal or localizing motor signs.

While negative explorations are necessarily rare, bilateral trephine opening is a wise measure when in serious doubt, especially since subdural hematoma is often bilateral.

Valuable aids in diagnosing the surgical hematoma are x-ray films of the skull for possible visualization of a pineal shift, and angiography and/or ventriculography.

Hematomas of the Posterior Fossa

The same factors that give rise to bleeding in the anterior fossa may also prevail in the posterior fossa. Hence hemorrhage may be epidural, subdural or intracerebellar.

There is still another lesion in the posterior fossa that follows trauma—adhesive arachnoiditis over the cerebellum and brain stem, sealing over the cisterna magna and over the basal cisterns, thus preventing escape of the ventricular fluid.¹⁴ The cisterna magna then dilates, forming an arachnoidal cyst. The cerebellar lobes become separated and the tonsils are forced downward into the spinal canal. The resultant blocking of the ventricular system causes acute intracranial pressure, and pain may be distributed over the roots of the upper cervical spinal cord.

The author has operated on three patients with a lesion of this type. Two were adults, aged 33 and 46, and one an infant three and a half months of age with developing hydrocephalus. All had definite history of injury.

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REFERENCES

1. Aird, R. B., Straitt, L. S., Zealear, D., and Hrenoff, B. S.: Neurophysiological studies on cerebral concussion. *J. Neurosurg.*, 1952, 9:331-347.
2. Dutra, F. R.: Fatal internal injuries without associated external marks. *J.A.M.A.*, 148:424-426, Feb. 1952.
3. Echols, D. H., and associates: Tracheotomy in the management of head injuries. *Surgery*, Nov. 1950, 28:801-811.
4. Gay, J. R., and Abbott, K. H.: Common whiplash injuries of the neck. *J.A.M.A.*, 1953, 152:1698.
5. Graff, R. A.: Neurosurgery: Some diagnostic problems. *The Surg. Clin. of No. Amer.*, Dec. 1952.
6. Linthicum, F. H., and Rand, C. W.: Neuro-otological observations in concussion of the brain. *Arch. Otolaryngol.*, 1931, 13:785.
7. Pudenz, R. H., and Shelden, C. H.: The lucite calvarium—a method for direct observation of the brain. II. Cranial trauma and brain movement. *J. Neurosurg.*, 1946, 6:487-505.
8. Raaf, J.: Advances in the management of acute craniocerebral injury. *West. J. Surg. Gynec. and Obs.* 2:597-605, Dec. 1952.
9. Rand, C. W.: Persistent complaints of giddiness following cerebral concussion. Personal communication.
10. Raney, A. A., Raney, R. B., and Hunter, C. R.: Chronic posttraumatic headache. *J. Neurosurg.*, 1944, 6:458-465.
11. Sachs, E.: Head injuries. *Int. J. Med. and Surg.*, Dec. 1933, 567-569.
12. Seletz, E.: Recent trends in the management of craniocerebral injuries—a plea for the prevention of deaths from reversible injuries to the brain. *J. Amer. Med. Assn.*, 1955, 7:535-538.
13. Spiegel, E. A., Spiegel-Adolf, M., Wycis, H. T., Marks, M., and Lee, A. J.: Subcortical changes in cerebral concussion. Electroencephalographic and histopathologic findings. *Trans. Amer. Neurol. Assn.*, 1947, 169-173.
14. Trowbridge, W. V., and French, J. D.: Benign arachnoid cysts of the posterior fossa. *J. Neurosurg.*, 9:398-404, 1952.

CASE REPORTS

Idiopathic Acquired Hemolytic Anemia

CHARLES J. WALLACE, M.D., Sacramento

A 35-YEAR-OLD Caucasian man, first observed by the author in 1949 for a "checkup" examination, and thereafter at about yearly intervals, was found to be healthy on all occasions. No abnormalities were noted in routine examinations of the blood, in urinalysis, x-ray films of the chest (1950 and 1953) or in an electrocardiogram (1954).

Beginning about the first week of April, 1954, the patient felt unusually tired and noted dark urine, but not until April 22, when a friend noted "yellowish eyes," did he seek medical advice. The mucous membranes were pale and the skin and sclerae were icteric, but further physical examination revealed no clue as to the reason for the jaundiced state and probable anemia. None of his family had had a similar illness; he had taken no medication, and had had no exposure to toxic substances or to another jaundiced person. There had been no infection prior to the present illness. Only after laboratory studies, which are summarized below, was the diagnosis of acute, acquired, idiopathic hemolytic anemia apparent.

1. Hematological Studies

Hemoglobin 8.4 gm. per 100 cc.; value, 54.1 per cent; hematocrit (packed cell volume) 25 per cent; erythrocytes 2,520,000 per cu. mm.; mean corpuscular volume 99.5 cu. microns; mean corpuscular hemoglobin 33.0 micromicrograms; mean corpuscular hemoglobin concentration 33.5 per cent; reticulocytes 60 per cent; leukocytes 16,600 per cu. mm.; neutrophils 65 per cent (segmented 55, nonsegmented 10); eosinophils 0; basophils 0; lymphocytes 25; monocytes 6; metamyelocytes 4.

Remarks: Seventeen nucleated erythrocytes per 100 leukocytes. Pronounced polychromasia and definite spherocytosis.

Bone marrow: Pronounced normoblastic hyperplasia. Granulopoiesis showed some shift to the left, there being a relative increase in myelocytes and early metamyelocytes, with almost no segmented neutrophils appearing. Eosinophils and megakaryocytes were present in normal numbers.

Erythrocyte fragility test (per cent of hemolysis in

0.4 per cent saline solution): Patient, 76 per cent; normal control, 6 per cent.

Direct Coombs' test reaction: Positive.

2. Urine Studies

Results of routine tests within normal limits. Reaction for bilirubin, negative; for urobilinogen, faint in 1:20 dilution. (Test for hemoglobin not done.)

3. Blood Chemical Studies

Bilirubin: Direct 0.20 mg. per 100 cc.; delayed direct, 0.50 mg.; indirect, 1.95 mg.; per cent of promptness, 40; per cent of delayed direct, 25.

Cephalin flocculation: 24 hours, negative; 48 hours, negative.

Thymol turbidity: 5.0 units.

4. Stool Studies

Fecal urobilinogen (four day Watson-Schwartz procedure) 2,306 mg. per 24 hours.

A recapitulation of treatment and of results of subsequent tests appears in Table 1. The excess of erythrocyte destruction over production was counteracted by giving cortisone and by transfusion of erythrocytes suspended in normal saline solution. However, since excessive hemolysis was not completely stopped and since prolonged cortisone therapy did not seem warranted if it could be abandoned for some less complicated method of treatment, splenectomy was performed June 10, 1954. The surgeon observed an accessory splenule, about 1.0 by 1.5 cm., with its own blood supply, lying against the hilum of the moderately enlarged spleen proper, and both were removed. Having previously explored the abdominal cavity, he then opened and examined the lesser sac, but no other accessory splenules were found. Other than congestive splenomegaly, microscopic examination of the spleens showed no abnormality.

After operation the amount of cortisone was gradually reduced and use of the hormone was discontinued altogether on the ninth postoperative day. Results of all laboratory tests performed thereafter were normal.

DISCUSSION

Since the precise mechanism causing acquired hemolytic anemia of the autoantibody type is unknown,^{1,2} treatment is still empirical. Before the

Submitted November 7, 1955.

TABLE 1.—Recapitulation of Laboratory Data and Treatment

Date	Treatment	Reticulocytes per 100 Red Cells	Fecal Urobil- inogen (24 Hours)	Hemoglobin (Gm. per 100 cc.)	Reticulocytes	Direct Coombs' Test	Red Cell Fragility (Per Cent Hemolysis in 0.4 Per Cent Saline Solution)
April 23, 1954	.....	60.0	....	8.4	Spherocytosis (17 nucle- ated RBC/100 WBC)	Pos.	.....
April 25, 1954	Bed rest, cortisone 200 mg./d	....	....	7.1	Spherocytosis (31 nucle- ated RBC/100 WBC)	....	.....
May 3, 1954	Same	71.0	2306 mg.	5.8	Spherocytosis	Pos.	Patient: 76 Control: 6
May 4, 1954	Same plus 500 cc. red cells in 0.9% saline	....	....	....	.....	....	.....
May 5, 1954	500 cc. red cells in 0.9% saline	....	....	....	.....	....	.....
May 6, 1954	Bed rest, cortisone	....	....	11.6	Spherocytosis	Pos.	.....
May 21, 1954	Same	....	776 mg.	11.2	.....	Neg.	.....
June 2, 1954	Same	9.0	....	13.9	Only slight spherocytosis	Neg.	.....
June 10, 1954	Splenectomy	....	....	13.8	.....	....	.....
June 17, 1954	.....	....	....	14.7	Normal	Neg.	.....
July 14, 1954	.....	....	55 mg.	14.5	Normal	....	.....
Sept. 28, 1954	.....	....	....	16.2	Normal	....	.....
Jan. 11, 1955	.....	1.9	....	16.0	Normal	Neg.	Patient: 32 Control: 34
Sept. 28, 1955	.....	....	....	16.5	Normal	....	.....

advent of corticotropin (ACTH) and cortisone, splenectomy and blood transfusion offered the only hope of cure, but the results of these procedures alone were of benefit in only about 50 per cent of cases.² The use of hormones appears to have brightened the outlook,² but it is still too soon for accurate evaluation.

Whether cortisone protects erythrocytes from the effect of hemolysins or in some manner impairs the development of antibodies is also not known. In this instance, it would appear that cortisone had the latter effect, for the Coombs' test reaction be-

came negative and erythropoiesis decreased during cortisone administration before splenectomy. It would appear that persons with this disorder should be treated first with cortisone (or corticotropin) and then have splenectomy.

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REFERENCES

1. Dacie, J. V.: *The Haemolytic Anaemias*, Grune and Stratton, 1954.
2. Evans, R. E.: Autoantibodies in hematologic disorders, *Stanford Medical Bulletin*, 13:152-166, May 1955.



EDITORIAL

The National Library of Medicine

WE FIND OURSELVES, paradoxically, hoping for the passage of proposed legislation that would remove the world's greatest medical library from the management of those who have brought it to its present proud estate and put it into other hands.

We speak here, of course, of this country's Armed Forces Medical Library and of a bill (S. 3430) recently introduced in the Senate by Senators Lister Hill of Alabama and Joseph F. Kennedy of Massachusetts which would turn that priceless facility over to a newly created National Library of Medicine.

Often in a proposal for a change of management there is implication of reproof. Not so in the present case. On the contrary, the purpose of the proposed transplanting is to assure that the library will always have the special attention it deserves.

Behind the new legislation is a recommendation made more than a year ago by the Task Force on Federal Medical Services to the Commission on Organization of the Executive Branch of the Government (Hoover Commission). The Task Force noted that although originally organized for military use, the library now far surpasses, in nature, size, and level of activities, the needs of the Armed Forces and "is in fact the National Library of Medicine of the United States." Even as it now stands, it is virtually a *sine qua non* of orderly, well directed medical research.

Expressing concern for the well-being of the library in the years ahead, the Task Force pointed out that so far as money to support it is concerned, as a creature of the Armed Forces it must in peacetime compete with the needs of the military to maintain the skeleton of an effective fighting force and "in time of war it becomes naive to expect the preoccupation of the military to include the proper

maintenance and continuing development" of the institution. Even now the library needs better housing and the funds are not forthcoming. And this is a matter of immediate and compelling importance, for a large part of its historical collection of medical publications—ineffably valuable, since it is irreplaceable—abides uneasily in a building that is in a poor state of repair and almost wantonly susceptible to fire.

To make sure the library would never have to go hungry in event of budget-stretching economies, the Task Force recommended making it a principal function of another government agency rather than an incidental operation of the Armed Forces—great though it has grown in that habitat. The legislative bill, as it was presented to the Senate, did not specify what department of the Federal Government shall have supervision, but in some quarters the Department of Health, Education and Welfare has been suggested. The recommendation of the Task Force was that the Smithsonian Institution might best serve in the management of the library. However, putting the library into the hands of the Department of Health, Education and Welfare would seem to be a way to the same end, and we favor passage of the bill in any form that would assure the preservation and promote the growth of this great national asset.

Physicians will recognize at once that the library, directly or indirectly, serves all who do medical research, all who practice medicine and, ultimately, all who benefit from research and practice. Here, then, is a bill (S. 3430) that all of us can heartily endorse. Here, too, is a splendid opportunity for each of us to communicate to our elected representatives in Washington our earnest interest in the passage of medical legislation that will benefit all the nation.

One more thought, rather apart from stern practicality, that seems to need expressing is this:

Even though the purpose of the proposed transfer of the library is in itself a tacit tribute to its excellence, we wonder if something more direct cannot be done to ease the emotional wrench that the Army must feel at the separation of this old comrade in arms. Perhaps the bill, when it reaches its final form, can include specific provision for a suitable memo-

rial to the Surgeons General of the Army who nurtured the library from its beginning in 1836—particularly a recognition of the work of the late John Shaw Billings, who from 1865 when he was assigned to the office of the Surgeon General of the Army until his retirement from the service in 1895, gave to the library the zeal of creativeness.

Editorial Comment...

The Use of Physical Therapists and Allied Personnel in Medical Practice

THE CLASSIFICATIONS of persons without medical degrees who may lawfully attend the sick and injured in this state are unfortunately large. Some of these paramedical or adjunctive medical personnel possess training and knowledge of great potential benefit to the practicing physician and his patient. These include registered physical therapists* and registered occupational therapists. Other such legally franchised groups represent cultism ranging from harmless to harmful and from inexpensive to formidable commercial exploitation. Some alleged "physical therapists" (usually self styled as physiotherapists) are little better than "physical culturists."

Originally, qualified physical therapists were hospital personnel only. In recent years increasing numbers of them have opened their own offices for "private practice" of physical therapy. No law prevents their doing so, although various councils of the American Medical Association have repeatedly disapproved. There is a considerable difference between "private practice" and having a physical therapist a member of a medical group, paid by

salary, owning no equipment and unlisted in the telephone directory. Although the therapist in "private practice" invariably prefers to work under referral and orders from a physician, the pressure—often abetted by patients—to prescribe and treat directly is unavoidably high.

What can the conscientious physician do to minimize the obvious dangers in these circumstances?

1. He can first of all keep informed concerning the training and qualifications of paramedical personnel.

2. He can refer patients only to ethical, qualified therapists who refuse to prescribe for the patient off the street. If possible he should use salaried hospital staff therapists rather than those in business on their own. Well-trained therapists are usually diplomates of the American Registry of Physical Therapists and members of the American Physical Therapy Association.

3. He should provide the therapist with a diagnosis, hazards or dangers involved, objective to be gained and a clear and detailed physical therapy prescription. "Give the patient heat and massage" is equivalent to saying, "Do whatever you want." Further, the physician must follow his patient, make sure what treatment he is actually getting and not let it continue indefinitely.

4. When perplexed about either diagnosis or treatment the practitioner should not attempt to make a consultant of the therapist but should solicit opinion of specialists qualified in the particular field.

5. Perplexities can usually be resolved by applying the standard: What is best for my patient?

This editorial comment was prepared as a joint effort of the Northern California Society of Physical Medicine and Rehabilitation. The persons included are: S. M. Dorinson, M. D., Frances Baker, M.D., Gregory Bard, M.D., Karl Carlson, M.D., William Northway, M.D., Gerald G. Hirschberg, M.D., Sedgwick Mead, M.D., and Raoul Psaki, M.D.

*Note the distinction in this state between "registered" and "licensed" physical therapists. Only registered physical therapists and occupational therapists are required to graduate from schools approved by the Council on Medical Education and Hospitals of the A.M.A.

California MEDICAL ASSOCIATION

NOTICES & REPORTS

Council Meeting Minutes

Tentative Draft: Minutes of the 416th Meeting of the Council, St. Francis Hotel, San Francisco, February 12, 1956.

The meeting was called to order by Chairman Lum in Room 210 of the St. Francis Hotel, San Francisco, at 9:30 a.m., Sunday, February 12, 1956.

Roll Call:

Present were: President Shipman, Speaker Doyle, Councilors Lum, Heron, West, Wheeler, Wadsworth, Pearman, Harrington, McPharlin, Sherman, Bostick, Teall, Kirchner, Carey and Rosenow, Secretary Daniels and Editor Wilbur.

Absent for cause: President-Elect Charnock, Vice-Speaker Foster, Councilors Loos, Reynolds and Varden.

A quorum present and acting.

Present by invitation were: Messrs. Hunton, Thomas, Clancy and Gillette of C.M.A. staff; legal counsel Hassard; Messrs. Ben Read and Eugene Salisbury of the Public Health League; Messrs. K. L. Hamman and E. Paolini of California Physicians' Service; Doctors A. E. Larsen and William Gardener of C.P.S.; Doctor Francis T. Hodges, President of C.P.S.; Mr. William Rogers of the California Academy of General Practice; Doctor John Dement of the California State Department of Public Health; Mr. Fred O. Field, legal counsel of the Los Angeles County Medical Association; county society executive secretaries Scheuber of Alameda-Contra Costa, Roy B. Jensen of Fresno, Robert Marvin of Riverside, Clark Donmyer of San Bernardino, Olive Neick of San Francisco, Boyd Thompson of San Joaquin, Robert Wood of San Mateo, Joseph Donovan of Santa Clara and George Foster of Sacramento; and Drs. Dan O. Kilroy, Francis J. Cox, Herbert C. Moffitt, Jr., Grace Talbott, Hendrie Gartshore and Carl H. Jonas.

1. Minutes for approval:

(a) On motion duly made and seconded, minutes of the 415th Council meeting, held November 12, 1955, were approved.

(b) On motion duly made and seconded, minutes of the 253rd Executive Committee meeting, held November 12, 1955, were approved.

(c) On motion duly made and seconded, minutes of the 254th Executive Committee meeting, held December 14, 1955, were approved.

(d) On motion duly made and seconded, minutes of the 255th Executive Committee meeting, held January 24, 1956, were approved.

2. Membership:

(a) A report of membership as of February 10, 1956, was received and ordered filed.

(b) On motion duly made and seconded, three delinquent members whose 1955 dues had been received were voted reinstatement.

(c) On motion duly made and seconded in each instance, 21 applicants were voted Retired Membership. These were: Henry Chesley Bush, Elizabeth A. Davis, Jacob C. Geiger, Harry James Smith, Alameda-Contra Costa County; R. H. Bandelier,

SIDNEY J. SHIPMAN, M.D.	President
DONALD A. CHARNOCK, M.D.	President-Elect
JAMES C. DOYLE, M.D.	Speaker
PAUL D. FOSTER, M.D.	Vice-Speaker
DONALD D. LUM, M.D.	Council Chairman
ALBERT C. DANIELS, M.D.	Secretary-Treasurer
IVAN C. HERON, M.D.	Chairman, Executive Committee
DWIGHT L. WILBUR, M.D.	Editor
JOHN HUNTON	Executive Secretary

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Lawrence James Butka, Willa A. Cameron, Louis D. Cheney, E. M. Fainer, Albert L. Hill, Wm. F. Kroener, Carl E. Krugmeier, Sigrid H. Lauritsen, Charles W. Shirley, Earl Henry Yoder, Los Angeles County; Rieta C. Hough, San Diego County; Karl B. Eichorn, Thomas G. Inman, Christian E. Voight, San Francisco County; George Wm. Sevenman, San Mateo County; and Frank N. Chilton, Santa Clara County.

(d) On motion duly made and seconded in each instance, 24 applicants were voted Associate Membership. These were: Irma West, Alameda-Contra Costa County; Ilse V. Colett, Fresno County; Charles Grover Clay, John Lawrence Denny, Gordon E. Goodhart, Alfred Greenberg, Halle O. Hall, Gertrude T. Huberty, Meyer Isaac Leff, Ewald R. Lonser, Abraham T. Lu, Allan Grant Redeker, E. T. Remmen, Emanuel Sigoloff, William A. Skoog, John O. West, Los Angeles County; Mary Jo Tonelli, Marin County; Robert Pelatowski, Napa County; Ralph Hornberger, San Joaquin County; H. D. Chope, Merriman Hamblin, J. Paul Sweeney, John A. Withrow, San Mateo County; and Joseph W. Clark, Solano County.

(e) On motion duly made and seconded in each instance, 33 members were granted reductions of dues because of illness or postgraduate study.

3. *Financial:*

(a) A report of bank balances as of February 10, 1956, was received and ordered filed.

(b) A report of income and expenditures for January and for the seven months ended January 31, 1956, was received and ordered filed.

(c) Discussion was held on the advisability of establishing a loan fund for the benefit of members who had suffered financial losses in the recent floods in several counties. On motion duly made and seconded, it was voted to create a revolving loan fund of \$50,000 for the extension of non-interest-bearing loans to assist members to rehabilitate their properties from flood damages, such loans to be acted upon on an individual basis by the Executive Committee. A three-fourths vote noted.

4. *Commission on Medical Services:*

(a) Chairman Carey reported that a pilot study had been made on the costs of medical education and operating a medical practice, in response to a resolution adopted by the 1955 House of Delegates, and that the Commission believed no useful purpose would be served by making a wider study. The Commission recommended that no further study be made and the Council concurred.

(b) Doctor Carey reported that only three counties had requested California Physicians' Insurance

Corp. to write indemnity health insurance in their areas and that California Physicians' Service, the parent body, did not feel that such limited underwriting would provide an adequate distribution for sound underwriting.

On motion duly made and seconded, it was voted that the Council should introduce in the 1956 House of Delegates a resolution reading as follows:

WHEREAS, California Physicians' Insurance Corp. is completely organized and has been authorized by the Insurance Commissioner of the State of California to sell certain policies of indemnity insurance applicable to the costs of medical, surgical and hospital care; and

WHEREAS, Good business practice suggests the wisdom of offering such policies for sale on a statewide basis; now, therefore, be it

Resolved: That the officers and directors of the California Physicians' Insurance Corp. be requested to prepare and offer for sale, throughout the area in which the corporation is authorized to write insurance, such policies of indemnity insurance as best serve the needs of the public and the profession.

(c) Doctor Carey reported that the Committee on Maternal and Child Care, chaired by Doctor Harrington, had met in a conference on maternal and perinatal mortality and had recommended that the Association form a continuing committee of 12 members, finance the employment of investigators and other personnel and work through the county societies on studies of these problems. On motion duly made and seconded, it was voted to refer this matter back to the Commission on Medical Services for further study and report, after consultation with all interested commissions and committees.

(d) Doctor Carey recommended the appointment of a subcommittee to study the question of medical care for dependents of military personnel and other forms of government-financed medical care. On motion duly made and seconded, it was voted to accept this recommendation and assign such committee to the Commission on Medical Services.

(e) On motion duly made and seconded, it was voted to accept, with thanks for services, the resignation of Doctor A. A. Adames as a member of the Committee on Indigent Care and to appoint as his successor Doctor Henry Gardner of San Francisco.

(f) Doctor Francis J. Cox presented the final result of the Relative Value Fee Study, which, on motion duly made and seconded, was approved. The Council expressed its thanks to Doctor Cox for his long and successful devotion to this study.

(g) Doctor Cox also reported on meetings held

by the Bureau of Vocational Rehabilitation of the State Department of Education.

(h) Doctor Carey introduced a resolution adopted on a split vote by the Commission on Medical Services, calling for fees for x-ray services to be calculated on the two bases of the making of films and consultation services on such films. A motion to accept this recommendation, duly seconded, was lost. On further consideration, it was agreed that the principle of a single fee for any medical service should be followed and the Commission on Medical Services was instructed to prepare a suitable resolution to encompass that principle.

5. *Committee on Blood Banks:*

Doctor John R. Upton, Chairman of the Committee on Blood Banks, reported on a meeting of the committee held on December 16, 1955, at which it was agreed to request the Council to confirm a suggested program to be followed by blood banks admitted to the California system, to include:

1. All admitted blood banks should be nonprofit corporations approved by their local medical societies.

2. They should conform to the existing requirements for the processing of blood.

3. They should submit a financial history and a yearly audit for the approval of the committee.

4. They should submit to a periodic survey by the C.M.A. Committee on Blood Banks to determine the efficiency of their blood service and such other matters pertinent to the administrative and technical operation of their blood banks.

On motion duly made and seconded, it was voted to approve these principles.

6. *State Department of Public Health:*

Doctor John Dement of the State Department of Public Health reported that a statement was under preparation on the status of polio vaccine and that such statement would be presented to Doctor Edward B. Shaw, chairman of the Association's special committee on this subject.

Doctor Dement also summarized the current statistics on the supply of the vaccine, pointed out that 58 per cent of that received to date has been delivered through commercial channels and 42 per cent through public inoculation programs. No substantial supply of vaccine is being held in any one spot and the current supply is quite short.

7. *California Physicians' Service:*

(a) Doctor Francis T. Hodges, President of C.P.S., reported 12,800 physicians and 739,108 beneficiary members as of the close of 1955. He also reported that a joint program had been entered into

with Blue Cross in the northern counties and that one group of 6,600 persons had been signed under this arrangement.

To alleviate suffering from the recent floods, C.P.S. has offered to remit the dues of its members up to 90 days where flood damage has been suffered.

Doctor Hodges introduced Mr. Etchel Paolini, who has recently been appointed vice-president and general manager of C.P.S.

(b) Mr. Paolini presented a plan under which physician members of C.P.S. might secure group life insurance. On motion duly made and seconded, it was voted to refer this proposal to the Committee on Accident and Health Insurance for further study and later report. It was noted, for the record, that Councilor Heron did not participate in the discussion or vote on this subject because of his association with the insurance carrier offering to underwrite the program.

(c) Chairman Lum proposed, and the Council concurred, that Doctor E. E. Wadsworth, Jr., be appointed a member of the C.P.S. Board of Trustees as a Council representative.

(d) On motion duly made and seconded, it was voted that the Chairman appoint a nominating committee to recommend to the House of Delegates the members of the C.P.S. Board of Trustees to fill expiring terms.

8. *Commission on Public Policy:*

Doctor Dan O. Kilroy, Chairman of the Commission on Public Policy, reported on meetings held by the Committee on Legislation with representatives of pharmacy and chiropody on matters of mutual interest.

Doctor Kilroy also suggested that governmental officials be invited to address the House of Delegates.

Doctor Kilroy also suggested that legislative committees be established in each county society and the Council approved.

Doctor James C. Doyle urged that the Woman's Auxiliary be called upon to assist in certain phases of legislative activity.

9. *House of Delegates Resolutions:*

(a) Doctor Grace Talbott appeared in behalf of Resolution No. 9 from the 1955 House of Delegates, which would call for the opening of technical and scientific exhibits to the public on the final half-day of the Annual Session. It was pointed out that the Committee on Scientific Work had already discussed this proposal and found this an unworkable plan, except on a limited scale.

(b) Doctor Herbert C. Moffitt, Jr., asked that further consideration be given to Resolution No. 11, relative to teaching material in teaching hospitals. On motion duly made and seconded, it was voted to refer this to the Commission on Medical Education for study, including cooperation with a similar committee in the San Francisco Medical Society.

10. *Committee on Mental Health:*

Doctors Hendrie Gartshore and Carl Jonas reported on a meeting with clinical psychologists, at which the latter reported that legislation to effect certification of their members by the State of California was in preparation. He suggested the enlargement of his committee and its study of all mental health matters. On motion duly made and seconded, it was voted to direct the Commission on Medical Education to suggest the enlargement of the Committee on Mental Health and to prepare a summary of the objectives of the committee.

11. *Legal Department:*

Mr. Hassard reported on a meeting with hospital and medical examining personnel on the subject of admitting foreign graduates to limited period of postgraduate training, at which it was agreed to prepare legislative amendments to effect this result.

Mr. Hassard also reported on pending litigation in a case involving optometry. On motion duly made and seconded, legal counsel was authorized to prepare an *amicus curiae* brief in this case.

Mr. Hassard also suggested that the Council call a later meeting for the sole consideration of the effects of recent litigation. It was tentatively agreed that such meeting should be held in San Francisco on Saturday, March 24.

12. *Appointment of Committee Personnel:*

The Chairman announced, and the Council concurred, that the committee to recommend all commission and committee appointments, to be placed before the House of Delegates, would be Councilor Heron, Chairman, Councilors Rosenow, West, Harrington and Reynolds, with the president, president-elect and secretary serving ex-officio.

13. *State Department of Mental Hygiene:*

The Chairman discussed a communication which suggested that the Association approve a proposed set of standards applicable to the State Director of Mental Hygiene. On motion duly made and seconded, this matter was referred to the Executive Committee.

14. *Military Dependents:*

The Chairman discussed the need for a committee to consider legislation to provide for the care of

(Continued on next page)

C.M.A. Cancer Commission

Fight Cancer with a Checkup and a Check

The American Cancer Society has adopted for this year's slogan—"FIGHT CANCER WITH A CHECKUP AND A CHECK."

The Cancer Commission of the California Medical Association has continually stressed the importance of a periodic examination by the patient's personal physician as a sound and practical method of cancer detection. The American Cancer Society is to be congratulated for recognizing the wisdom of this type of program and for incorporating it into its educational and campaign programs. We hope they will continue to do so in the years to come.

As a result of this program, which will be launched officially during the month of April, there will undoubtedly be an increase in the number of people seeking examinations by physicians. The so-called Cancer Detection Examination, as previously publicized by the Cancer Commission in a brochure by the same name and distributed to all physicians in 1955, will in most instances suffice to meet this need. It should be pointed out that this suggested Cancer Detection Examination is in no sense advocated as a complete examination and physicians should, of course, rely on their own judgment as to the completeness of the examination.

Half of all cancer involves sites accessible to direct examination and fortunately are the ones most amenable to successful treatment. A thorough but simple examination (palpation plus direct and indirect visualization) will detect those cancers that respond most favorably to treatment. If such lesions are discovered while still localized to the site of origin, the prognosis is, of course, quite favorable. By utilizing cytologic examination, certain cancers can now be detected before any clinical signs are present, and this method should be used freely. X-ray examination of the chest may uncover silent lung lesions. Other laboratory procedures should be used as indicated.

However, we would like to stress the point that by simple direct examination, without complicated and expensive laboratory procedures, half of all cancer can be detected. The sites in which these cancers occur are: Mouth and pharynx, thyroid, breast, skin, prostate, uterus and rectum.

The American Cancer Society is stressing the importance of the periodic "checkup" and we urge that every physician of the Association give his support to this program. We believe that it will not only result in enhancing our program of cancer control, but will do a great deal to improve our public relations.

CANCER COMMISSION
CALIFORNIA MEDICAL ASSOCIATION

Council Meeting Minutes

(Continued from Page 302)

military dependents, such committee to include representatives of veterans' organizations. On motion duly made and seconded, it was voted to authorize the Council Chairman to appoint such a committee.

15. *Tribute to Mr. K. L. Hamman:*

Councilor Carey presented, and the Council, on motion duly made and seconded, approved a resolution to commend Mr. K. L. Hamman for his furtherance of the principles of California Physicians' Service and his untiring efforts in behalf of the doctors of the California Medical Association.

16. *Association-Sponsored Tours:*

Mr. Hunton presented proposals offered by two air carriers to conduct European tours which would be open to members of the Association. On motion duly made and seconded, both proposals were approved.

17. *Basic Science Legislation:*

President Shipman read a letter from a member which urged further consideration of the possibility of achieving basic science legislation in California. On motion duly made and seconded, this letter was referred to the Committee on Medical Education.

18. *Physical Education:*

President Shipman discussed a letter from a member relative to a proposed meeting on physical therapy. On motion duly made and seconded, it was voted to refer this matter to the Committee on School Health.

19. *Annual Session Guest Speakers:*

Doctor Daniels, Chairman of the Committee on Scientific Work, presented a list of guest speakers and nonmember speakers scheduled for the 1956 Annual Session. On motion duly made and seconded, the Council voted approval of this list.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 5:35 p.m.

DONALD D. LUM, M.D., *Chairman*
ALBERT C. DANIELS, M.D., *Secretary*

Executive Committee Minutes

Tentative Draft: Minutes of the 256th Meeting of the Executive Committee, San Francisco, March 17, 1956.

The meeting was called to order by Chairman Heron in the Association office, 450 Sutter St., San Francisco, on Saturday, March 17, 1956, at 2 p.m.

Roll Call:

Present were President Shipman, Council Chairman Lum, Speaker Doyle and Auditing Committee Chairman Heron.

Absent for cause were President-elect Charnock and, ex-officio, Editor Wilbur and Secretary Daniels.

A quorum present and acting.

Present by invitation were Messrs. Hunton and Gillette of C.M.A. staff.

1. *Flood Relief Loans:*

On motion duly made and seconded, it was voted to extend interest-free loans to several member applicants to assist in rehabilitation of damages suffered in the recent floods.

2. *Central California Blood Bank:*

Mr. Hunton reported that additional loan funds would be required by Central California Blood Bank and that the revolving loan fund established by the Council had a balance available. On motion duly made and seconded, it was voted to extend an additional \$10,000 loan to Central California Blood Bank.

3. *Association Mailing List:*

On motion duly made and seconded, it was voted to make the Association's mailing list available to the Los Angeles County Physicians' Aid Association for circularizing members on the current fund-raising campaign.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 4:00 p.m.

IVAN C. HERON, M.D., *Chairman*
JOHN HUNTON, *Acting Secretary*

In Memoriam

ABOWITZ, JACOB. Died in Dallas, Texas, February 24, 1956, aged 77. Graduate of Fordham University School of Medicine, New York City, 1917. Licensed in California in 1928. Doctor Abowitz was a retired member of the Los Angeles County Medical Association, the California Medical Association, and an associate member of the American Medical Association.



BROWN, ELWYN VANCE. Died February 23, 1956, aged 37. Graduate of the University of Southern California School of Medicine, Los Angeles, 1946. Licensed in California in 1946. Doctor Brown was a member of the San Bernardino County Medical Society.



FACEY, FREDERICK DUNCAN. Died in Burbank February 11, 1956, aged 63, of malignant tumor of the brain. Graduate of McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1920. Licensed in California in 1922. Doctor Facey was a member of the Los Angeles County Medical Association.



GOULD, NED BURKE. Died in Modesto, March 3, 1956, aged 75. Graduate of Cooper Medical College, San Francisco, 1908. Licensed in California in 1908. Doctor Gould was a member of the Stanislaus County Medical Society.



LUECHAUER, KENNETH DANIEL. Died in Fresno, February 25, 1956, aged 58, of myocardial infarction. Graduate of Northwestern University Medical School, Chicago, Illinois, 1929. Licensed in California in 1929. Doctor Luechauer was a member of the Fresno County Medical Society.



NAGEL, JOSEPH FREDERICK. Died in Long Beach, February 19, 1956, aged 37. Graduate of the University of Cincinnati

College of Medicine, Ohio, 1946. Licensed in California, 1953. Doctor Nagel was a member of the Los Angeles County Medical Association.



OMELVENA, JAMES GIBSON. Died in San Diego, December 7, 1955, aged 74, of coronary thrombosis. Graduate of Rush Medical College, Chicago, Illinois, 1906. Licensed in California in 1923. Doctor Omelvena was a member of the San Diego County Medical Society.



PLANE, JOHN FREDERICK. Died in Corvallis, Oregon, January 7, 1956, aged 81. Graduate of the Minneapolis College of Physicians and Surgeons, Minnesota, 1903. Licensed in California in 1923. Doctor Plane was a member of the Los Angeles County Medical Association.



PRUETT, HARRY JEROAM, SR. Died in San Francisco, February 23, 1956, aged 64, of coronary occlusion. Graduate of Stanford University School of Medicine, Stanford University-San Francisco, 1917. Licensed in California in 1917. Doctor Pruett was a member of the San Francisco Medical Society.



STOVALL, LEONARD. Died in Los Angeles, February 18, 1956, aged 68. Graduate of the University of California Medical School, Berkeley-San Francisco, 1912. Licensed in California in 1912. Doctor Stovall was a member of the Los Angeles County Medical Association.



WILSON, JOHN MILLER. Died in Altadena, February 23, 1956, aged 87. Graduate of the University of Illinois College of Medicine, Chicago, 1902. Licensed in California in 1905. Doctor Wilson was a member of the Los Angeles County Medical Association.



WOMAN'S AUXILIARY

TO THE CALIFORNIA MEDICAL ASSOCIATION

Nurse Recruitment . . . A Major Auxiliary Activity

The Woman's Auxiliary's Nurse Recruitment program offers an illustration of what can happen when women get behind a project with enthusiasm and purpose. Nurse Recruitment is one of the biggest and most successful activities on the Auxiliary agenda, with nearly all the counties participating. Last year alone, 258 loans or scholarships were granted by 29 counties; 89 programs on nursing as a career were presented under Auxiliary auspices, reaching over 7,000 young women; 55 new Future Nurses Clubs were organized; and 22 counties distributed material on nursing to their schools.

The impetus for such Auxiliary participation in nurse recruitment came during World War II, when the shortage of nurses was acute. Today, while the shortage is no longer as critical as it was, the importance of good nurses to the medical profession is still most vital. And not only does Nurse Recruitment offer physicians' wives a practical opportunity to help their husbands, it also offers a splendid avenue to the improvement of public relations. Auxiliary members believe that they can perform a valuable service by acquainting a maximum number of young women with facts about nursing—and about the medical profession as a whole.

Organization a Vital Factor

The Auxiliary's Nurse Recruitment program is highly, and effectively, organized. It includes three major types of activities—recruitment *per se*, scholarships and loans, and the organization of Future Nurses Clubs. Much of the county Auxiliary work is directed from the state and national levels, with the national committee supplying suggested individual programs and the state committee supplying films, posters, guide-books, handbooks, school plays, etc. On the state level, the Nurse Recruitment Committee works hand in hand with the California League of Nursing in the setting up of the programs and in the screening, selecting and distributing of material.

This kind of cooperation exists not only in the state of California, but all over the country, which accounts for the fact that over \$85,000 was raised nationally for nurses' scholarships last year.

Recruitment

Not only is recruitment important, it is also one of the most interesting parts of the Auxiliary program, for it involves working directly with young women in the community. Auxiliary members interest the students in high schools and in junior colleges in nursing through the use of films, panel discussions, the distribution of booklets, the production of school plays, etc.

The Auxiliary works in close cooperation with the schools and the local branches of the California League of Nursing in setting up such recruitment activities. Members also

help arrange teas and other social events where young women can become acquainted with members of the nursing profession. And they provide transportation for field trips to hospitals, medical schools and other places of interest to prospective nurses.

Scholarships and Loans

Since the start of the Nurse Recruitment program, the California Auxiliary has raised over \$57,000 for nursing scholarships and loans—an impressive figure for less than 15 years' work. Many counties make a benefit for scholarships and loans their major annual fund-raising event. Kern County Auxiliary, the first to launch a scholarship program, has granted a grand total of 40 nursing scholarships. This county sponsors two girls at a time through three years of nursing school. Kern Auxiliary members take a close interest in their nurse trainees, even to remembering them with personal gifts at Christmas time.

Future Nurses Clubs

An important part of Nurse Recruitment is to help maintain a young woman's interest in nursing while she finishes her high school or junior college training. To this end, a program of Future Nurses Clubs was launched a few years ago and has since spread widely over the country. Early in 1954 there were just 294 of these clubs; in April, 1955, there were 1,200. Here in California, there are 90 Future Nurses Clubs, 55 of which were organized by Auxiliaries last year.

These clubs are open to any students in high school or college, and their programs are keyed in with activities and developments in the field of nursing. Auxiliary members act as sponsors of Future Nurses' Clubs in their community schools, working with the school nurses who are the faculty advisors.

Funds for Activities

Of course, the work for such broad-scale Nurse Recruitment activities requires substantial financing. The total Nurse Recruitment program here in California functions on about \$10,000 a year. Of this, \$3,000 is supplied by the California State Nursing Association and the California League of Nursing, \$3,000 by the California Hospital Association, and \$3,000 by the C.M.A. The remaining \$1,000 is accounted for by donations. The Woman's Auxiliary has also contributed small sums to these operational costs during the past few years.

Major Contribution

The Woman's Auxiliary has made its major contribution, however, in the time and tremendous enthusiasm which it has put into this program. Typical of this is the fact that the Auxiliary of Yuba-Sutter-Colusa counties, in dire straits from the recent flood damage, was able to continue its nurse scholarship loan fund. Auxiliary members all over the state feel the same way—as long as there is a need for Nurse Recruitment, it will be an important and significant part of their activities.

NEWS & NOTES

NATIONAL • STATE • COUNTY

HUMBOLDT-DEL NORTE

Dr. Lester S. McLean, at one time health officer of Solano County, and more recently director of local health services for the Montana State Health Department, has been appointed health officer for the Humboldt-Del Norte Bi-county Health Department. He succeeds Dr. Robert Morris in that post.

LOS ANGELES

The annual C.M.A. Golf Tournament will be held at the Wilshire Country Club, Monday, April 30. Starting times will be from 9:30 a.m. to 12:30 p.m. Caddies will be available. A snack bar will be open at the tenth tee. In order that those golfing physicians and their wives who may wish to do so may attend the dinner dance honoring the president of the California Medical Association, which is to be held Monday night at the Ambassador Hotel, this year the usual golf dinner with the awarding of prizes will not be held immediately after the tournament. Instead, on Tuesday evening, May 1, there will be a cocktail hour and a banquet for all visiting golfers and their wives at the Wilshire Country Club. The social hour will begin at 6 p.m., dinner at 7:15, and the prizes for the tournament will be awarded during the dinner hour.

Reservations for dinner must be made and paid for at the time of registration for golf on Monday, April 30, at the Wilshire Country Club.

SAN FRANCISCO

Award of two five-year \$30,000 Markle Foundation scholarships to physicians on the staffs of medical schools in San Francisco was announced recently.

One went to Dr. Frederick L. Eldridge, an instructor in medicine at Stanford University School of Medicine, who will use it to continue research in respiratory physiology.

The other scholarship was awarded to Dr. Vincent DiRaimondo, an assistant research physician in the University of California School of Medicine's Metabolic Unit. Dr. DiRaimondo played an important part in the development of new and better procedures for the estimation of the potency of corticotropin (ACTH) and other preparations used in the treatment of rheumatic diseases.

The recipients were among 23 young American physicians attached to medical schools who were selected by the Foundation for outstanding promise in academic medicine.

GENERAL

In connection with Medical Education Week, April 22-28, Mr. S. Sloan Colt, president of the National Fund for Medical Education, has addressed a letter to the nation's physicians urging that they discuss with businessmen the need for contributions to aid medical schools.

Pointing out that corporation support requires a "pains-taking and persistent campaign of education to show busi-

ness leaders their stake in medical education," Mr. Colt added that "nowhere is a businessman more approachable than in a discussion with his doctor."

"I am not suggesting," the letter continued, "that physicians badger their patients for contributions to the Fund. But I am wondering if doctors cannot be a great ally of the Fund in bringing, in some way, the needs of the medical schools to the attention of the businessmen among their acquaintances. Certainly no one is better qualified to speak authoritatively than doctors. And no one could be more convincing."

"Medical Education Week, it seems to me, provides an excellent occasion for beginning such an approach. It will be a period when the needs of the medical schools, as well as the achievements of medical science, will be discussed at meetings businessmen attend and in publications they read. Perhaps then, too, the approach can be followed up from time to time during the year. . . . Once they are convinced, they are likely to become regular annual contributors to the Fund."

* * *

The American College of Gastroenterology, in cooperation with the Ames Company of Elkhart, Indiana, recently announced the opening of the 1956 Ames Award Contest for the best papers on gastroenterology.

There will be two classes of awards as follows:

1. Fellows in gastroenterology, resident, first or second year interns. First prize, \$500, a certificate of merit and a one year subscription to *The American Journal of Gastroenterology*; second prize, \$250, a certificate of merit and a one year subscription to the *Journal*.

2. Best paper published. For the best paper published in *The American Journal of Gastroenterology*, during the 12 months ending June 30, 1956, for which no prize has been previously awarded, \$250.

All papers submitted must represent original work in gastroenterology, must not have been previously published except for abstracts or short preliminary reports and must not have been previously presented at any national meetings. The contents of the papers can be clinical or basic science. Clinical papers must not be case records, but controlled clinical work.

All unpublished entries must be received no later than July 15, 1956, and should be addressed to the Research Committee, American College of Gastroenterology, 33 West 60th Street, New York 23, N. Y.

* * *

The Food and Drug Administration announced recently that the evidence of record does not warrant removal of the hypnotic drugs acetyl carbromal and bromural from the list of drugs that are required by federal law to bear the label statement: "Warning: May be Habit Forming."

* * *

The Third National Cancer Conference, sponsored by the American Cancer Society, Inc., and National Cancer Institute, Public Health Service, will be held June 4-6 at the Sheraton-Cadillac Hotel, Detroit.

This meeting will consist of symposia on various cancers by site and will constitute a summarization of recent clinical developments in the diagnosis and treatment of cancer.

All physicians are invited to attend. The announcement of the meeting said that "an interesting program for wives is being planned by the local host committee."

Copies of the program, advance Conference registration cards and hotel reservation cards may be procured from any local division of the American Cancer Society or from the Coordinator of the Third National Cancer Conference, 521 West 57th Street, New York 19.

The Fifth annual **Symposium for General Practitioners on Tuberculosis and other Chronic Pulmonary Diseases** will be held at Saranac Lake, New York, July 9-13, 1956. It is approved for 26 hours of formal credit for members of the American Academy of General Practice. Announcement of the course said that it is "designed particularly for general practitioners."

Sessions will be held in the various sanatoria, hospitals and laboratories in the Saranac Lake area. The faculty will consist of physicians, surgeons and scientists from Saranac Lake as well as guest lecturers.

The registration fee is \$40. Further information and copies of the program can be obtained by writing Dr. Edward N. Packard, general chairman, Symposium for General Practitioners, P. O. Box 262, Saranac Lake, N. Y.

* * *

The 8th Annual Teaching Seminar of the **International Academy of Proctology** will be held at the Drake Hotel, Chicago, April 23 to 25, 1956. The International, National, and Local Program Committees are planning an unusual seminar on anorectal and colon surgery. There will be special emphasis on anorectal presentations, and on panel discussions, as requested by those who attended the New York meeting in 1955.

All physicians and their wives are cordially invited to attend the seminars, whether or not they are affiliated with the Academy. There is no fee for attendance at these teaching sessions of the Academy.

POSTGRADUATE EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education assemblies and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Assistant Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

In Los Angeles:

Dissection of the Thorax, Abdomen and Pelvis. April 24 to May 29. Fifteen hours. Fee: \$125.00.

Dermatology, 1956. June 22 and 23. Ten and one-half hours.*

Laboratory Technicians Symposium. June 23 and 24.*

Recent Advances in Medicine. July 23 to 27. Thirty-five hours. Fee: \$75.00 for full week or \$20.00 per day.

Recent Advances in Surgery. July 16 to 18. Nineteen and one-half hours.*

Surgery of Trauma. July 19 and 20. Twelve hours.*

Techniques of Hypnosis. July 9 to 11. Fifteen hours. Fee: \$50.00.

Advanced Techniques and Application of Hypnosis. July 11 to 13. Fifteen hours. Fee: \$100.00.

Anesthesia Seminar. August 27 to 29. Eighteen hours. Fee: \$50.00.

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Plastic Surgery, May 18.*

Peripheral Vascular Surgery, May 19.*

Fundamental Principles of Radioactivity and the Diagnostic and Therapeutic Uses of Radioisotopes. Two or three month course limited to one enrollee per month. Tuition: \$250.00 per month.

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MONTrose 4-3600, Ext. 665.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Surgical Planing. April 26, 27, 28. Fourteen hours. Hotel Statler and Los Angeles County Hospital. Fee: \$50.00.

Anesthesia. Full time for three months. Opening every three months. Fee: \$300.00.

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. Residents admitted without fee. Tuition for all other physicians: \$30.00. (Each session all-inclusive.)

Contact: Phil R. Manning M.D., Director of Medical Extension Education, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

Anesthesiology. Daily, full-time, four months, beginning each four months. Fee: \$300.

Thoracic Surgery, Wednesdays, April 18 to May 9. Eight hours. Fee: \$30.00.

Diseases and Injuries of Bones and Joints, Daily, July 2 to July 31. Full time. Fee: \$100.00.

Contact: Chairman, Section on Graduate and Postgraduate Medicine, College of Medical Evangelists, 1720 Brooklyn Ave., Los Angeles 33. ANGelus 9-9131, Ext. 205.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE INSTITUTES

SAN JOAQUIN VALLEY COUNTIES in association with the University of California School of Medicine, Los Angeles, May 10 and 11, Hacienda, Fresno.

SACRAMENTO VALLEY COUNTIES in association with Stanford University School of Medicine, June 21, 22, 23, Cal-Neva Lodge, Lake Tahoe.

POSTGRADUATE CIRCUIT COURSES

NORTH COAST CIRCUIT:

Eureka—Mondays, April 16, 23, May 14, 21.

Ukiah—Tuesdays, April 17, 24, May 15, 22.

Woodland—Wednesdays, April 18, 25, May 16, 23.

Napa—Thursdays, April 19, 26, May 17, 24.

*Fees to be announced.

SACRAMENTO VALLEY CIRCUIT:

Dunsmuir—Mondays, April 16, 23, May 14, 21.
Chico—Tuesdays, April 17, 24, May 15, 22.
Marysville—Wednesdays, April 18, 25, May 16, 23.
Auburn—Thursdays, April 19, 26, May 17, 24.

Contact: C. A. Broaddus, M.D., Director of Postgraduate Activities, P.O. Box A-1, Carmel, California, or Mrs. Margaret H. Griffith, Assistant Director, Postgraduate Activities, California Medical Association, 417 So. Hill St., Los Angeles 13.

Medical Dates Bulletin

APRIL MEETINGS

AMERICAN COLLEGE OF PHYSICIANS 37TH ANNUAL SESSION, Los Angeles, April 16-20.

Contact: George C. Griffith, M.D., General Chairman, Box 25, 1200 N. State St., Los Angeles 33.

CANCER COMMISSION, California Medical Association Cancer Conference for San Luis Obispo County Medical Society, April 21; 6:30 p.m. Dinner, San Luis Obispo.[†]

VALLEY CHILDREN'S HOSPITAL ANNUAL SPRING CLINICS, April 27 and 28, 9 a.m., Roosevelt High School Auditorium, Fresno. Fee: \$15.00.

CALIFORNIA CHAPTER OF AMERICAN COLLEGE OF CHEST PHYSICIANS annual meeting, Ambassador Hotel, Los Angeles, April 28.

Contact: Mortimer A. Benioff, M.D., secretary-treasurer, 2255 Van Ness Ave., San Francisco, or Samuel J. Sills, M.D., chairman, Program Committee, 2007 Wilshire Blvd., Los Angeles 57.

WESTERN INDUSTRIAL MEDICAL ASSOCIATION annual meeting, all day, April 28, Ambassador Hotel, Los Angeles.

Contact: Edward Zaik, M.D., secretary, 740 South Olive Street, Los Angeles 14.

HAWAII MEDICAL ASSOCIATION Centennial Celebration. Scientific sessions, historical pageant of 100 years of medicine in Hawaii, social festivities, etc., Honolulu, April 22 to 29.

Contact: Hawaii Medical Association, 510 S. Beretania Street, Honolulu 13, Hawaii.

CALIFORNIA MEDICAL ASSOCIATION ANNUAL MEETING, celebrating 100th Anniversary, Ambassador Hotel, Los Angeles, April 29 to May 2.

Contact: John Hunton, Executive Secretary, 450 Sutter St., San Francisco 8, or Ed Clancy, Director of Public Relations, 417 S. Hill St., Los Angeles 13.

WESTERN SECTION, AMERICAN UROLOGICAL ASSOCIATION, April 30 to May 3, Sheraton-Palace Hotel, San Francisco.

Contact: James Ownby, Jr., M.D., 516 Sutter St., San Francisco.

MAY MEETINGS

CALIFORNIA SOCIETY OF ANESTHESIOLOGISTS, INC., Annual Meeting, May 2, 1:00 p.m., Grove Lounge, Ambassador Hotel, Los Angeles.

Contact: Francis E. Guinney, M.D., secretary, 2790 Monte Mar Terrace, Los Angeles 64, or telephone DUnkirk 7-4236.

NEW MEXICO MEDICAL SOCIETY annual session, Roswell, New Mexico, May 2 to 4.

Contact: Ralph R. Marshall, executive secretary, 223-24 First National Bank, Albuquerque, N. M.

CALIFORNIA CONFERENCE OF LOCAL HEALTH OFFICERS semi-annual meeting, May 3-4, Auditorium, Los Angeles City Health Dept., 111 E. First Street, Los Angeles, 9 a.m. to 5 p.m. both days.

Contact: John C. Dement, M.D., chief, Division of Local Health Service, California Dept. of Public Health, 2151 Berkeley Way, Berkeley 4.

CALIFORNIA HEART ASSOCIATION ANNUAL MEETING AND SCIENTIFIC SESSION, La Playa Hotel, Carmel, May 18 to 20.

Contact: J. Keith Thwaites, executive director, California Heart Association, 1428 Bush Street, San Francisco 9.

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION 23rd Annual Meeting, Hotel Utah, Salt Lake City, Utah, May 30 to June 2.

Contact: Mrs. L. Amy Darter, secretary-treasurer, at State Public Health, 2151 Berkeley Way, Berkeley 4, California.

SUMMER AND FALL MEETINGS

LA MESA COMMUNITY HOSPITAL Clinical Session, "Civilian Defense, Radioactive Fallout, and Decontamination of Casualties—both immediate and late care," June 15 to 23, Tripler General Hospital, Honolulu, Hawaii. Chartered plane to leave International Airport. Total cost, including meals, hotel, etc., \$360.00 plus tax.

Contact: John H. Gorby, administrator, La Mesa Community Hospital, 8665 La Mesa Blvd., La Mesa.

IDAHO STATE MEDICAL ASSOCIATION annual meeting, June 17-20, Sun Valley, Idaho.

Contact: Armand L. Bird, executive secretary, Idaho State Medical Association, 364 Sonna Building, Boise, Idaho.

MEDICAL LIBRARY ASSOCIATION 55th annual meeting, June 18 to 22, Hotel Statler, Los Angeles.

Contact: Mrs. Ella Crandall, librarian, Los Angeles County General Hospital, Los Angeles.

WYOMING STATE MEDICAL SOCIETY annual meeting, Jackson Lake Lodge, Moran, Wyoming, June 29 and 30.

Contact: A. R. Abbey, Box 2036, Cheyenne, Wyoming.

COLORADO DIVISION OF THE AMERICAN CANCER SOCIETY 10th annual Rocky Mountain Cancer Conference, Shirley-Savoy Hotel, Denver, Colorado, July 11 and 12.

Contact: John S. Bouslog, M.D., 835 Republic Building, Denver 2, Colorado.

NEVADA STATE MEDICAL ASSOCIATION annual meeting, Reno, Nevada, August 22 to 25.

Contact: Nelson B. Neff, executive secretary, P. O. Box 188, Reno, Nevada.

ST. JOHN'S HOSPITAL Postgraduate Assembly, September 10, 11, 12, 9 a.m. to 4 p.m. and 8 to 9 p.m. Elks Club, Santa Monica.

**For registration or information, contact:* Gertrude Jones, M.D., Children's Hospital, San Francisco.

[†]*Contact:* Walter E. Batchelder, M.D., Medical Director, Cancer Commission, 467 O'Farrell Street, San Francisco.

Contact: John C. Eagan, M.D., director, 1245 Glendon Ave., Los Angeles 24.

SAN DIEGO COUNTY GENERAL HOSPITAL TENTH ANNUAL POSTGRADUATE ASSEMBLY, September 19-20.

Contact: Howard B. Kirtland, Sr., M.D., Chairman, Postgraduate Committee, 3505 Fourth Avenue, San Diego 3.

CALIFORNIA SOCIETY OF INTERNAL MEDICINE ANNUAL MEETING, September 29, La Playa Hotel, Carmel.

Contact: Mrs. Mildred B. Coleman, Assistant Secretary, Room 515, 384 Post Street, San Francisco 8.

SAN FRANCISCO HEART ASSOCIATION Annual Postgraduate Symposium, October 3, 4, 5, 1956, St. Francis Hotel, San Francisco.

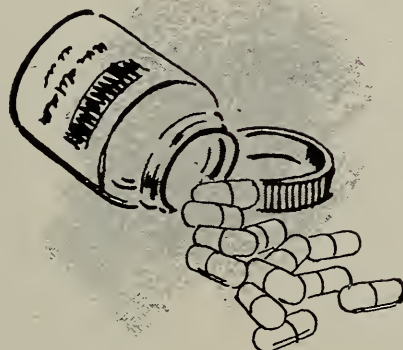
Contact: Executive director, 604 Mission St., San Francisco.

LOS ANGELES COUNTY HEART ASSOCIATION 26th Annual Symposium on Heart Disease, Wilshire-Ebell Theatre, 4401 West 8th St., Los Angeles, October 10 and 11.

Contact: Robert A. Pike, executive director, Los Angeles County Heart Association, 316 South Bonnie Brae, Los Angeles 57 or telephone DUnkirk 8-4127.

CALIFORNIA ACADEMY OF GENERAL PRACTICE 8th Annual Scientific Assembly, Hotel Statler, Los Angeles, October 14, 15, 16, 17.

Contact: William W. Rogers, executive secretary, California Academy of General Practice, 461 Market St., San Francisco.



INFORMATION

Attorney General's Opinion as to Pathologists' Retention of Tissue Or Organs After Autopsy

EDITOR'S NOTE: There has been considerable uncertainty in the law with respect to the legality of retention of tissue or organs by a pathologist after autopsy, particularly where such retention results in burial minus such tissue or organs. Some legal authorities have taken the position that the law does not permit any part of any human remains to be removed and not restored prior to interment in the absence of express permission by the next of kin.

A recent opinion of the California Attorney General issued January 26, 1956, clarifies the law in this field and reaches the following conclusion:

"Where the coroner or autopsy surgeon removes body tissue or organs as authorized by law for the purpose of ascertaining the cause of death, he would be neither civilly nor criminally liable for not returning the unconsumed portions of the sample tissue to the body before burial, where such retention is reasonably necessary to determine the cause of death."

The Attorney General opinion is limited to those situations where retention of tissue or organs is reasonably necessary to determine the cause of death. It does *not* sanction or condone removal of tissue for any other purpose. For all purposes other than necessary studies to determine the cause of death, consent by the next of kin to removal and retention remains a legal necessity.

**Opinion of Edmund G. Brown, Attorney General;
Victor Griffith, Deputy Attorney General
No. 55/227**

January 26, 1956

Honorable Malcolm H. Merrill, M.D., Director of the Department of Public Health, has submitted the following question for our opinion:

Must a coroner or autopsy surgeon who removes organs and body tissue from various parts of a human corpse, to aid in the determination of the cause of death, return the unused portion of the organs and tissue to the body prior to burial?

Our conclusion may be summarized as follows:

Where the coroner or autopsy surgeon removes body tissue or organs as authorized by law for the purpose of ascertaining the cause of death, he would

be neither civilly nor criminally liable for not returning the unconsumed portions of the sample tissue to the body before burial, where such retention is reasonably necessary to determine the cause of death.

ANALYSIS

Government Code section 27491 provides:

"It shall be the duty of the coroner to investigate or cause to be investigated, the cause of death of any person reported to the coroner as having been killed by violence, or who has suddenly died under such circumstances as to afford a reasonable ground to suspect that his death has been occasioned by the act of another by criminal means, or who has committed suicide, and of all deaths of which the provisions of the Health and Safety Code make it the duty of the coroner to sign certificates of death. For the purpose of such investigation he may in his discretion take possession of and inspect the body of the decedent, which shall include the power to exhume such body, make or cause to be made a post mortem examination or autopsy thereon, and make or cause to be made an analysis of the stomach, blood, or contents, or organs, or tissues of the body, and secure professional opinions as to the result of such post mortem examination. He shall cause the information secured to be reduced to writing and forthwith filed by him in his records of the death of the individual. He may also, in his discretion, if the circumstances warrant it, hold an inquest.

The coroner has the power to summon a surgeon to hold a post mortem examination or a chemist to make an analysis of the stomach or tissues of the deceased and give a professional opinion as to the cause of death (Gov. Code Sec. 27499).

The cemetery authority, funeral director, or licensed hospital may permit an autopsy on receipt of written authorization from the surviving spouse, surviving child or parent, next-of-kin who has required the right to control the disposition of the remains, or a coroner, or other duly-authorized public officer (Health and Saf. Code Sec. 7113).

Section 7114 of the Health and Safety Code provides, in substance, that any person who performs an autopsy without first obtaining the necessary consent is guilty of a misdemeanor, except that section does not apply to performance of an autopsy by the coroner or other officer authorized by law to perform autopsies.

Under Health and Safety Code section 7051, it is a felony for anyone to remove any part of any human remains from any place where it has been interred or any place where it is deposited while awaiting interment with intent to dissect it without authority of law. It is also a felony to mutilate any

human remains without authority of law (Health and Saf. Code section 7052).

The policy of the foregoing statutory provisions is to provide a means for the determination of the cause of every death and to punish unauthorized dissections of dead human bodies. If the cause of death is not known at the time of its occurrence, it is to be determined thereafter (*Gray v. Southern Pacific Company*, 21 Cal. App. 2d 240, 244; 20 Ops. Cal. Atty. Gen. 143).

In the performance of the coroner's duty, it is necessary that he have wide discretion. He may order an autopsy when, in his judgment, it is the appropriate means of ascertaining the cause of death. This is particularly true where death appears to have been caused by a criminal agency. The coroner may perform an autopsy without the consent of the family of the deceased (*Huntly v. Zurick General A. & L. Insurance Company*, 100 Cal. App. 201, 213).

The Legislature having expressly declared that the coroner is vested with the duty of inquiring into the cause of death in certain cases, it is clear that he or his lawful assistants possess the right and the duty to perform the necessary tests which are consistent with sound medical and pathological practice. To accomplish this purpose, the coroner or autopsy surgeon has the right to remove organs, blood, and samples of tissue from the corpse to form a basis for his diagnosis. The extent of removal of these materials from a dead body is an area in which the judgment of the coroner or autopsy surgeon must control.

To require the unused portion of organs or tissue, which, in the judgment of the autopsy surgeon have been removed to determine the cause of death, to be returned to the body prior to burial would necessarily—in many instances—place an undue hardship upon the office of the coroner and the autopsy surgeon. While the statutes hereinabove referred to do not place any time limit after death within which an autopsy must be performed or cause of death ascertained, Section 10429 of the Health and Safety Code requires the coroner to deliver a death certificate to the attending funeral director within three days after the coroner examines the body. However, to facilitate the issuance of a burial permit, the death certificate may be marked "inquest pending" in those cases where the death certificate cannot await the outcome of extended medical and pathological examinations necessary in some cases to determine the cause of death (3 Ops. Cal. Atty. Gen. 349).

Generally, burial takes place three or four days after death. Often the routine business of a coroner's office does not permit the coroner or autopsy surgeon to complete an examination of tissue or organs prior to burial. Then, too, it may be necessary for the tissue or organs to be preserved for further micro-

scopic examination, in order to make an accurate diagnosis. A rule requiring the coroner or autopsy surgeon to return organs or unused sample tissue to the body for burial prior to the formation of a sound opinion as to the cause of death would not only be against the policy of the law as set forth in the above-quoted statutes, but would place an undue restriction on the present practice of pathology wherein these materials are frequently kept in the laboratory for a period of days or weeks before a diagnosis can be made. Moreover, if a criminal means is suspected as the cause of death, the next-of-kin should not be able to frustrate the purpose of the law by demanding the return of material evidence from which the cause of death is to be ascertained.

With reference to the right of a coroner to conduct an autopsy, we said, in 20 Ops. Cal. Atty. Gen. 143, at page 145:

"... Within the area of his duties, the judgment of the Coroner governs. The action of the Coroner in this respect is qualified only by the implied limitation that he not be grossly unreasonable, arbitrary or capricious in the exercise of his discretion."

This rule applies with equal force to the coroner or his lawful assistants in removing tissue and organs from dead bodies during an autopsy when it is reasonably necessary to retain these materials beyond the burial date, in order to determine the cause of death. By following this standard, neither the coroner nor the autopsy surgeon would be subject to civil or criminal liability because their activities would then be authorized by law and therefore not proscribed by the statutes referred to above.

We do not wish to imply, however, that coroners or autopsy surgeons enjoy absolute immunity from prosecution—civil or criminal—in performing autopsies and retaining organs or tissue beyond the burial date.

In several cases, the next-of-kin of the deceased have been awarded damages against the autopsy surgeon or coroner for the unauthorized removal or unauthorized retention of organs after demand by the next-of-kin for their return (see *Palmquist v. Standard Accident Insurance Co.*, 3 F. Supp. 358; *Koerber v. Patek*, 102 N. W. 40 [Wis.]; *Palenzke v. Bruning*, 98 Ill. App. 644; *Jackson v. Savage*, 96 N. Y. S. 366). An analysis of these cases reveals that they have one thing in common: The retention of organs and tissue beyond the date of burial does not appear to have been necessary in order to ascertain the cause of death.

In *Gray v. Southern Pacific Company*, 21 Cal. App. 2d 240, the Court took a practical view, and stated, at page 247, that even if the removed organs

were arbitrarily retained "... Their return to the plaintiff (if such were possible), after having served their purpose in aiding in the determination of the cause of death, could have caused her only embarrassment, and, perhaps, horror; ..."

The Court also held (at page 247) "... assuming a violation of plaintiff's right to the return of the removed organs, such violation could give rise to no more than nominal damages."

We therefore conclude that no legal liability attaches to the coroner or autopsy surgeon who, in order to discover the cause of death—a duty imposed upon him by law—removes tissue and organs and, when reasonably necessary to complete his diagnosis, retains them after the burial of the body.

Poliomyelitis Vaccine Status

*Extracted from Report to the Governor for February 1956 by M. H. Merrill, M.D.,
Director of Public Health*

THE STATEWIDE poliomyelitis vaccine shortage still exists. Releases to California by the United States Public Health Service during the months of January and February of this year amounted to only 419,643 cc. This limited supply was divided between commercial channels and public agency programs. A supply of 198,324 cc. (47.3 per cent) was distributed commercially, and 221,319 cc. (52.7 per cent) was ordered for local health jurisdictions.

To date, California has received 15 releases of vaccine for a total of 1,635,481 cc. as its share of national production. Consistent with state policy to attempt to keep commercial channels open, 56.9 per cent (929,982 cc.) has been distributed through druggists and physicians; 43.1 per cent has been ordered for community programs being conducted by local health departments.

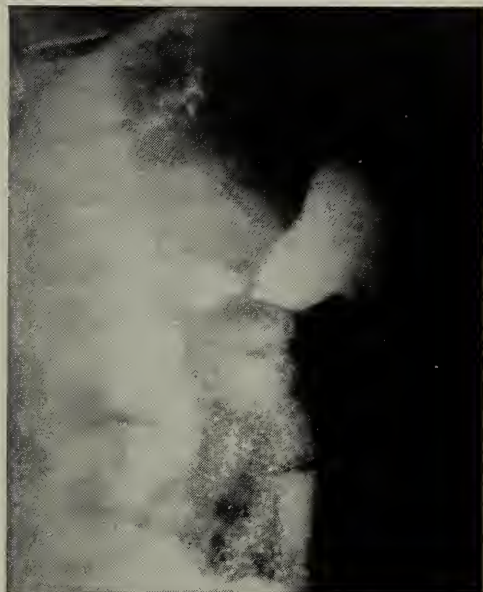
Some encouragement for a more favorable supply situation was provided in February with the first release, since May 1955, of vaccine produced

by Parke, Davis and Company. Previously only three manufacturers (Eli Lilly, Wyeth Laboratories, and Pitman-Moore Company) had released vaccine produced under the revised standards. Since the latter part of December the demand for vaccine has equalized throughout the state. The various manufacturers have recently given assurances to the state that the commercial vaccine will be offered for sale on a basis of approximately 50 per cent for northern California and 50 per cent for southern California. It is expected that this will give the practicing physicians an equal opportunity at the limited supply which will be available until production is greatly increased.

The limited vaccine supply now available should be utilized to the greatest extent possible. In view of the present estimates that the interval between the first and second inoculations can be as long as six months without loss of effectiveness, and in view of the evidence that one inoculation gives significant protection against paralytic poliomyelitis, it should be emphasized that it is neither necessary nor desirable to withhold the administration of the first inoculation of the series until the second inoculation can be assured.

The state has obtained slightly over 40 per cent of its total due under the Poliomyelitis Vaccination Assistance Act. Because of insufficient supply, some local health departments have been forced to halt their poliomyelitis vaccine immunization programs. Allocations of the public supply are made to local health jurisdictions according to a priority based on the percentage of vaccine already received of the total allocated. Every effort is being made to keep these programs active to the degree supply permits. With the exception of two counties, Lake and San Benito, all of the state's health jurisdictions are already participating in the current program. Plans for the aforementioned counties are anticipated, and it is expected that all areas will eventually receive their full share of the federal purchase vaccine before the expiration of the extended deadline of July 1, 1957.

Reduced Hypermotility, Improved Delineation with Pro-Banthine®: Case History



Basic film: pronounced hypermotility of stomach and bulb; diagnosis not possible.



Five-minute film after 15 mg. of Pro-Banthine intramuscularly: large gastric ulcer on lesser curvature clearly visualized.

J. R., male, age 50, when first seen* complained of severe abdominal pain of six weeks' duration. Initial gastrointestinal roentgenologic examination revealed marked hypermotility of the stomach and duodenal bulb. Because of rapid emptying it was not possible to visualize a lesion either in the stomach or duodenal bulb. However, the patient's symptoms strongly suggested an ulcer, and he was reexamined after the injection of 15 mg. of Pro-Banthine (brand of propantheline bromide) intramuscularly. A marked diminution in motility occurred and a huge gastric ulcer was easily visible on the lesser curvature at the junction of the upper and middle third of the stomach.

This patient is now receiving 30 mg. of Pro-Banthine four times daily and gained 8 pounds during the first ten days of therapy.

He was completely relieved of pain within twenty-four hours. The ulcer is presently healed and he is asymptomatic, six weeks following initiation of Pro-Banthine therapy. This is an excellent example of delineation of a lesion which escaped detection with the ordinary technique of gastrointestinal roentgenography. If an ulcer is suspected and the initial roentgenologic examination is negative or inconclusive, the roentgenographic study should be repeated following the oral administration of 30 mg. or the intramuscular injection of 15 mg. of Pro-Banthine. G. D. Searle & Co., Research in the Service of Medicine.

*Roentgenograms and case history courtesy of I. Richard Schwartz, M.D., Kings County Gastrointestinal Clinic, Brooklyn, N. Y.

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SEARLE

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Physicians Leave Bandages Off Surgical Wounds

Further evidence of the safety and practicality of leaving clean chest and abdomen surgical wounds uncovered by dressings was given by three Des Moines Veterans Administration hospital physicians.

They said in a recent issue of the *Journal of the American Medical Association* that clean wounds without dressings appear to heal more rapidly and with less reaction than covered wounds.

In addition, the nondressing of such wounds is convenient, saves surgical dressings costs and the time of doctors and nurses, and eliminates the cumbersome dressings and irritation of adhesive tape, Drs. Louis T. Palumbo, Philip J. Monnig, and Dudley E. Wilkinson said.

The method was first recommended before 1920, but has not been used extensively, they said.

Sun Tan Ointments May Cause Dermatitis

Preparations to protect the skin from sunburn may actually cause inflammation, a Florida dermatologist said recently.

Dr. Wiley M. Sams, Miami, said the preparations themselves are harmless to the skin, but in the presence of direct sunlight sometimes cause redness and eruptions of the skin.

Lime oil, bergamot oil, some perfumes and toilet waters, and some derivatives of tannic acids have caused known reactions among Dr. Sams' patients. Other southern dermatologists also are seeing cases of "contact photodermatitis" with increasing frequency, he said.

What apparently happens is that the preparations, while protecting the skin from the "sunburning" light rays, produce a chemical reaction in the skin

Beginning in June, 1954, the doctors conducted a study of 211 consecutive cases with 222 clean surgical wounds of the abdomen and/or the chest. Of this group, 106 patients with 111 wounds were treated without surgical dressings and 105 patients with 111 wounds with dressings.

Those with dressings were cared for in the conventional manner, with the bandages being removed from nearly all six to eight days after surgery. In the other group, all but three had their dressings removed within 24 hours and the wound left uncovered. The remaining three had their dressings removed within 48 hours after surgery.

In only one case did the patient complain of the wound being irritated by the sheets or pajamas. The patients raised no objections to the program and "even welcomed" the opportunity to watch the healing of their wounds, the authors said.

which sensitizes it to other light rays. Routine "patch" tests with the same preparations but without exposure to sunlight fail to produce any reactions in most cases, he said.

Dr. Sams pointed out that the eruptions are short-lived and do not cause too much discomfort.

They rarely recur in the same vacation season, probably because the person stops using the sun tan lotions and creams—as a result of his having been sunburned and tanned after the first exposure, or because he has acquired "a certain amount of caution," Dr. Sams said. In addition, thickening of the top skin layer after the first exposure may serve as additional protection.

Dr. Sams made his report in a recent issue of the *Archives of Dermatology*, published by the American Medical Association.

County Medical Groups Have Wide Range of Activities

Activities of the nation's county medical societies ranged from cancer and tuberculosis control programs to sponsorship of Little League baseball teams during 1954-55, a recent American Medical Association survey showed.

Nearly 64 per cent of the 1,931 county medical societies in the United States and its territories replied to a questionnaire on their professional, educational, and community programs, circulated by the A.M.A.'s council on medical service.

"There appeared to be a growing awareness by all societies—both large and small—of the need for them to become participants in community activities," a report in a recent issue of the *Journal of the American Medical Association* said.

Telephone-answering services and emergency call systems, which help patients reach physicians at all

times, were maintained by many societies, especially in large cities.

Activities aimed at developing better relations between the medical profession and the public included grievance committees, which serve as "appeal boards" for patients with complaints; medical economic committees, which maintain business services for doctors and the public, and public relations committees, which help to promote better understanding by the public of the societies' aims and activities.

In order to interpret their activities to the laymen, societies maintained speakers' bureaus and sponsored state and county fair exhibits, health fairs, special community health days, radio and television programs, and newspaper health columns.

They attempted to promote better health in their communities by participating in programs to provide medical care for the indigent and by activity

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County Medical Groups Have Wide Range of Activities

(Continued from Page 54)

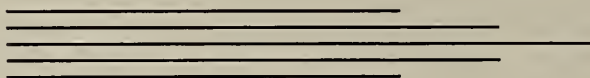
in county or city health councils, which are voluntary associations of community agencies interested in various aspects of health.

Disease control programs included cancer, tuberculosis, diabetes, rheumatic fever, and venereal disease. Many societies had committees dealing with special medical problems, such as care of the aged

and the chronically ill, rehabilitation, maternal and child care, mental health, public health, and alcoholism.

In addition, they sponsored school health and safety programs, many running poster and essay contests in schools. Societies also participated in such diverse community projects as community chest drives, slum-clearance programs, vocational guidance, better government movements, mosquito control, and Little League baseball programs.

Plan now to attend THE TECHNICAL EXHIBITS



at the 1956 Annual Session of the California Medical Association located in the Sunset Room, Ballroom, Boulevard Room, and Casino Floor of the Ambassador Hotel, Los Angeles, April 29-May 2.

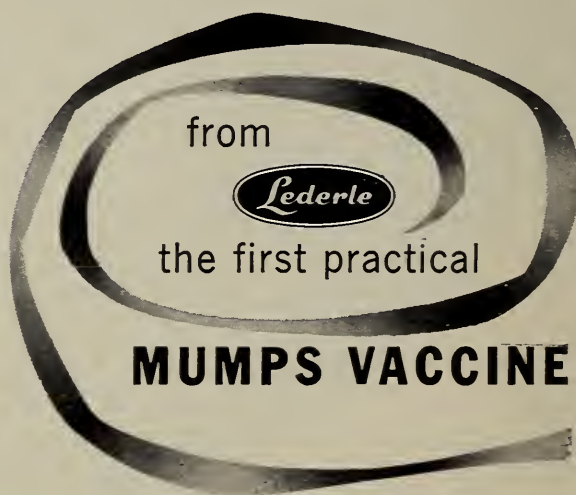
COOK COUNTY Graduate School of Medicine INTENSIVE POSTGRADUATE COURSES

STARTING DATES—SPRING & SUMMER 1956

SURGERY—Surgical Technic, Two Weeks, April 30, May 14
Surgical Anatomy & Clinical Surgery, Two Weeks, June 18
Surgery of Colon & Rectum, One Week, May 7, June 18
General Surgery, Two Weeks, April 23
Thoracic Surgery, One Week, June 4
Esophageal Surgery, One Week, June 11
Breast & Thyroid Surgery, One Week, June 18
Gallbladder Surgery, Ten Hours, June 25
Fractures & Traumatic Surgery, Two Weeks, June 18
Varicose Veins, Ten Hours, April 30, June 18
GYNECOLOGY—Office & Operative Gynecology, Two Weeks, April 16, June 18
Vaginal Approach to Pelvic Surgery, One Week, April 30, June 11
OBSTETRICS—General & Surgical Obstetrics, Two Weeks, May 7
MEDICINE—Internal Medicine, Two Weeks, May 7
Electrocardiography & Heart Disease, Two Weeks Basic Course, July 9
Gastroscopy & Gastroenterology, Two Weeks, September 10
Dermatology, Two Weeks, May 7
RADIOLOGY—Diagnostic X-Ray, Two Weeks, April 30, September 17
Clinical Uses of Radioisotopes, Two Weeks, May 7
PEDIATRICS—Intensive Review Course, Two Weeks, May 14
Neurological Diseases: Cerebral Palsy, Two Weeks, June 18
UROLOGY—Two-Week Course October 8
Cystoscopy, Ten Days, by appointment

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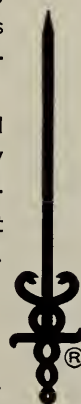
In cities, towns and villages all over America, the ringing of church bells one day in April will mark the launching of the annual Cancer Crusade of the American Cancer Society. At the same time, in many doctors' offices, the staccato ring of door and telephone bells will mark the success of a major objective of the Society.

"Fight Cancer with a Checkup" is the American Cancer Society's immediate, short-range answer to the terrible toll of lives taken each year by this dread disease. It is to your office that the Society is urging the public to go for the periodic examinations that can mean the early detection and prompt treatment of cancer, and could prevent thousands and thousands of needless deaths.

Achievement of our ultimate goal — the conquest of cancer — will be largely determined by the response to our plea to "Fight Cancer with a Check". This year the Society needs \$26,000,000 to carry on its vital program of education, research and service.

"Fight Cancer with a Checkup and a Check"—a winning combination. With your support and the cooperation of the public, the sound of victory will one day ring through the land.

American Cancer Society



American Cancer Society, California Division
467 O'Farrell Street • San Francisco 2, California • TUxedo 5-5822

Sears Roebuck Foundation Makes First Medical Practice Loans

Loans ranging from \$3,000 to \$25,000 have been made to 18 physicians to help them finance new medical practices, the Sears-Roebuck Foundation has announced.

These grants were made under the 1955 plan of assistance which the foundation, in cooperation with the American Medical Association, introduced last September. The foundation grants long-term, unsecured loans to physicians to supplement their personal funds or local financing which cannot cover the entire cost of starting practice.

The foundation administers the plan, while the screening and selection of applicants is done by a 17-member advisory board of physicians from all sections of the country, named by the American Medical Association board of trustees. The foundation said it has allotted \$149,000 for the plan during 1956.

Loans last year went to 18 doctors who are setting up 10 practice units in eight states. These are of two kinds: One brings medical care and facilities to communities where none exists, and one retains existing care and facilities in communities about to lose them.

(Continued on Page 70)

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176.60 calories

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* Protein deficiency among the aging apparently stems from their excessive intake of white-flour foods which furnish incomplete protein of low biologic value. White bread protein, for example, has been shown by nutrition studies in animals⁵ to be deficient only in the amino acid, lysine. In human subjects metabolic determinations indicate that the addition of supplemental lysine to a basal white-flour protein diet can convert a negative nitrogen balance into a positive one.⁶



A WORD ABOUT SYMPTOMATOLOGY

In spite of jokes to the contrary, the patient who states in the professional office that "old age is creeping up" is a rare bird indeed.

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Vitamin A (Palmitate)	6,000 U.S.P. Units
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Iron (from Ferrous Gluconate)	10.2 mg.
Cobalt (from Cobaltous Sulfate)	0.1 mg.
Molybdenum (from Sodium Molybdate)	2 mg.
Copper (from Cupric Sulfate)	1 mg.
Manganese (from Manganous Sulfate)	1 mg.
Magnesium (from Magnesium Sulfate)	6 mg.
Iodine (from Potassium Iodide)	0.15 mg.
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Zinc (from Zinc Sulfate)	1.2 mg.

**Enzymatically active defatted material obtained from 1,500 mg. whole fresh liver and stomach.

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Liver Fraction I	25 mg.
Ethyl Alcohol	0.5 cc.

Dosage: One teaspoonful twice daily before meals, or as required.

Supplied: In 16 fluid ounce bottles, prescription only.

Bibliography

1. Anonymous. 2. Rosenthal, P.: Geriatrics 10:382 (August) 1955. 3. Lansing, A. I.: Symposium on Problems of Gerontology, National Symposium Series No. 9 (August) 1954. 4. Mason-Hohl, E.: Quoted in W. Va. Med. J. 51:16 (Janu-

ary) 1955. 5. Rosenberg, H. R., et al.: Arch. Biochem. and Biophys. 49:263, 1954. 6. Bricker, M., Mitchell, H. H. and Kinsman, G. M.: J. Nutrition 30:269, 1945. 7. Masters, W. H. and Ballew, J. W.: Geriatrics 10:1, 1 (January) 1955.



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Early Training May Prevent Child's Speech Defects

Guidance of mothers in the early management of speech behavior of their children may help prevent speech defects in mentally normal children, two physicians and a nurse said recently.

A study of 290 mentally-normal children with speech defects was reported in a recent issue of the *Journal of Diseases of Children*, published by the American Medical Association. It was done by Dr. Benjamin Pasamanick, Columbus Ohio; Frances K. Constantinou, R.N., Baltimore, and Dr. Abraham M. Lilienfeld, Buffalo, N.Y.

In earlier investigations the physicians found that childbirth abnormalities are significant in the background of cerebral palsy, epilepsy, mental deficiency, and some childhood behavior disorders. They thought speech defects might also be related to such abnormalities, because specific injury to the brain in adults has been reported to result in speech defects and because speech disorders are very common among children with cerebral palsy and mental deficiency.

Records of 290 children, born in Baltimore since 1940, with speech defects but without mental deficiency or cerebral palsy showed no more complications of pregnancy and delivery, prematurity, or abnormal conditions of the newborn than did records of a similar number of normal children without speech defects.

However, the discovery that there were more twins and more later-born (third, fourth or fifth) children in the speech defective group suggests that psychological and social factors play a role in causing speech defects, they said.

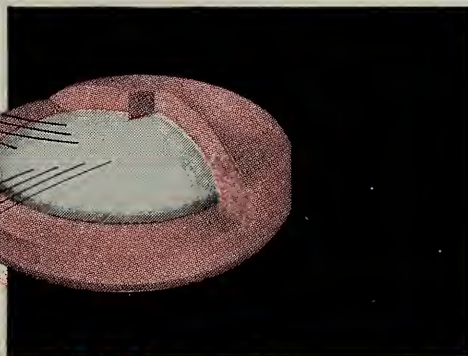
It is possible that twins who have more contact with each other than with older children learn from each other immature, faulty, speech patterns which become fixed due to their closeness and mutual comprehension of their impaired speech, the authors said.

It might also be that later-born children develop speech defects because of rivalries, disorganizations, and frustrations in large-family living. The impatience of older family members with speech in the younger children or the lack of attention from a busy mother with several children might also contribute to the production of speech defects, they said.

The prevention of some of these socially and psychologically disabling disorders may lie in the guidance of mothers in the early management of their children, they said, adding that further study of these factors is necessary.

The study was aided by a grant from the Foundation for Mentally Retarded and Handicapped Children of Baltimore.

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Sears Roebuck Foundation Makes First Medical Practice Loans

(Continued from Page 62)

Eight are being established in small towns in northern Georgia, central and northeast Oklahoma, southwest Colorado, northern Texas, southwest Michigan, southeast New York and Connecticut. The others are in suburbs of Tulsa, Okla., and Seattle, Wash.

Theodore V. Houser, president of the Sears-Roebuck Foundation, said he feels the plan has begun satisfactorily, but in the future greater em-

phasis will be placed on helping doctors locate in communities without medical care.

Requests for assistance will be evaluated on professional qualifications of the applicant, the availability of medical service in the community, the extent of community participation in establishing the proposed unit, and the soundness of the plans proposed for providing medical care.

C.M.A. Annual Session

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Physicians Note Reduction in Operative Risks for Aged

A comparison of records for the last decade with those of 20 years ago shows the falsity of the adage "the older the person, the greater is the operative risk," two St. Louis physicians said recently.

Drs. Carl A. Moyer and J. Albert Key found that for many operations the risks now are the same for persons over 60 years as for persons under 60. Survival rates for all ages have increased greatly in the last decade, and especially for the older

group, they said in a recent issue of the *Journal of the American Medical Association*.

One reason for the change is improved treatment of postoperative infection through the use of antibiotics. This is particularly true for cholecystectomy and appendectomy, which used to have high death rates because of infection. The outlook is now about as good for old as for young patients.

Greater skill in administering anesthetics, fluids, and blood have also helped to reduce risks. Anesthesia, long considered an important factor, actually

(Continued on Page 82)

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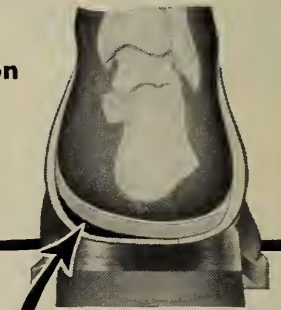
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1. Johnston, R.L.: J. Indiana St. M.A. 46:869, 1953. 2. McHardy, G., and Browne, D.: Southern M. J. 45:1139, 1952.

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Study Shows Most Effective Seasickness Drugs

Chances of seasickness are lowest among passengers who are under 25, slightly thin, traveling midship on a second or third voyage—and are supplied with one of 11 drugs recently proved to be helpful.

A five-month study of 26 anti-motion sickness drugs among almost 17,000 servicemen, reported recently, showed that 11 of them were helpful and three of these were more effective than the rest.

The study was reported in a recent issue of the *Journal of the American Medical Association* by an Army, Navy and Air Force motion sickness team.

The tests were run from November 15, 1954, to April 10, 1955, on military transports crossing the Atlantic. Ten eastward and five westward crossings were used. Passengers were given unmarked pills which were either drugs or placebos. Placebos are inactive substances used as a yardstick against which the action of real medicines can be measured.

The study showed that susceptibility to seasickness decreased with age; that individuals quartered fore and aft were more susceptible than those in midship; that heavier individuals were slightly, but not significantly, more susceptible than their lighter colleagues. The activities of the men while on board had no relation to their susceptibility to illness.

Motion sickness was twice as frequent in persons who had had it before as in those with no history of

sickness. However, seasickness was less frequent on westward trips—possibly because all the passengers had had at least one previous crossing.

The top three drugs by trade name are Bonamine, Phenegan, and Marezine when given three times daily. All showed prolonged activity, the team reported.

Four other effective drugs by trade name are Dramamine, Parsidol, Benadryl, and Trimeton. While effective, they were less so than the top three. Four drugs found to work for the first time are UCB 158, Cogentin, Vibazine, and Sandostene.

The duration of action of Bonamine was clearly longer than that of the other drugs tested. So for a long sea voyage, where it may be necessary to use drugs for several days, Bonamine seems to be the drug of choice, the team said.

For shorter sea voyages and for most air travel, where protection is needed for only a few hours, a single dose of Bonamine, Marezine, or Phenegan should be equally effective, the team said.

The rest of the compounds tested were found to be ineffective. These included vitamins and some of the new tranquilizing drugs, the team said.

C.M.A. Annual Session

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1. Bohne, A.W., and Chase, W.E.: *Am. J.M. Sc.* March, 1956. 2. Berkowitz, D.: *Antibiot. & Chemo.* 3:618 (June) 1953. 3. Editorial: *J.A.M.A.* 159:1459 (Dec. 10) 1955.

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Physicians Note Reduction in Operative Risks for Aged

(Continued from Page 74)

is comparatively unimportant, except in operations which otherwise are of little risk, such as those for hernia, appendicitis, and the thyroid disorders, they said.

Their study showed that aging itself is not "an insuperable barrier" to performing needed surgery on more patients without pushing over-all risk beyond an acceptable level, they said.

The extent of the surgery is not as important in determining operative risk among the aged as is the duration of physiological upset before, during, and after the operation, they said. Although it is

hard to evaluate the degree to which a patient's strength has been undermined by a long period of preoperative illness, this is important in determining the risk.

Some rather involved operations, such as removal of a breast or cholecystectomy, have low operative risks because the following physiological upset is relatively brief, while some less complex operations with long recovery periods have significantly higher risks. The operative risks are similar for both old and young in thyroidectomy, hernia operations, and partial removal of the stomach for duodenal ulcers, they said.

(Continued on Page 90)



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1. Johnson, H. J., Jr.: Clinical Evaluation of a New Antihistaminic: Clistin Maleate, Amer. Pract. & Digest. Treat. 5:862 (Nov.) 1954.

2. Council on Pharmacy & Chemistry: New and Non-official Remedies, 1955, Philadelphia, J. B. Lippincott Co., 1955, p. 8.

3. Beale, H. D., et al.: Clistin Maleate. A Clinical Appraisal of a New Antihistaminic, J. Allergy 25:521 (Nov.) 1954.

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BOOKS RECEIVED

CHRISTOPHER'S TEXTBOOK OF SURGERY—Sixth Edition—Edited by Loyal Davis, M.D., Chairman of the Department of Surgery, Northwestern University Medical School. W. B. Saunders Company, Philadelphia, 1956. 1,484 pages, 1,359 illustrations on 716 figures, \$15.50.

CLINICAL ELECTROCARDIOGRAPHY—Part I, *The Arrhythmias, with an Atlas of Electrocardiograms*—Louis N. Katz, A.B., M.A., M.D., F.A.C.P., Director, Cardiovascular Dept. Michael Reese Hospital, Chicago; Alfred Pick, M.D., Physician-in-charge of Heart Station and Research Associate, Cardiovascular Dept. Michael Reese Hospital. Lea & Febiger, Philadelphia, 1956. 737 pages, 415 illustrations, \$17.50.

COURSE IN PRACTICAL THERAPEUTICS, A—Third Edition—Martin Emil Rehfuss, M.D., F.A.C.P., LL.D. (Hon.) Professor of Clinical Medicine, Emeritus, and Director of the Division of Therapeutics in the Dept. of Medicine, The Jefferson Medical College, Philadelphia; Alison Howe Price, A.B., M.D., Associate Professor of Medicine, the Jefferson Medical College, Philadelphia; Williams and Wilkins Company, Baltimore, 1956. 972 pages, \$15.00.

DIAGNOSIS AND TREATMENT OF VASCULAR DISORDERS (ANGIOLOGY)—Edited by Saul S. Samuels, A.M., M.D., F.A.C.A., F.A.C.C., Editor-in-chief, *Angiology*; Pres. Angiology Research Foundation, etc. The Williams and Wilkins Company, Baltimore, 1956. 621 pages, \$16.00.

DISEASES OF THE CHEST—H. Corwin Hinshaw, M.D., Ph.D., Clinical Professor of Medicine, Stanford University School of Medicine; L. Henry Garland, M.B., B. Ch., Clinical Professor of Radiology, Stanford University School of Medicine; W. B. Saunders Company, Philadelphia, 1956. 727 pages, \$15.00.

EXCITABILITY OF THE HEART. Chandler McC. Brooks, Ph.D., Brian F. Hoffman, M.D., E. E. Suckling, M. Sc., M.E.E., Dept. of Physiology and Pharmacology, State University of New York, College of Medicine at New York City and Oscar Orias, M.D., Instituto de Investigacion Medica Mercedes y Martin Ferreyra, Cordoba, Argentina. Grune & Stratton, New York, 1955. 373 pages, \$6.50.

DIAGNOSIS AND MANAGEMENT OF UROLOGICAL CASES, THE—Handbook. Bruce W. T. Pender, M.B., B.S., F.R.C.S., Senior Surgical Registrar, St. George's Hospital, London; James O. Robinson, M.A., (Cantab.) M. Chir., F.R.C.S., Senior Surgical Registrar, St. Bartholomew's Hospital, London; Bailliere, Tindall and Cox, London, 1955. 170 pages, \$5.00.

FOLLOW-UP STUDY OF WORLD WAR II PRISONERS OF WAR, A—Bernard M. Cohen, Ph.D., and Maurice Z. Cooper, M.D., Veterans Administration, Washington, D.C. V. A. Medical Monograph, Department of Medicine and Surgery, Veterans Administration, Washington 25, D. C., 1955. 81 pages, \$1.50.

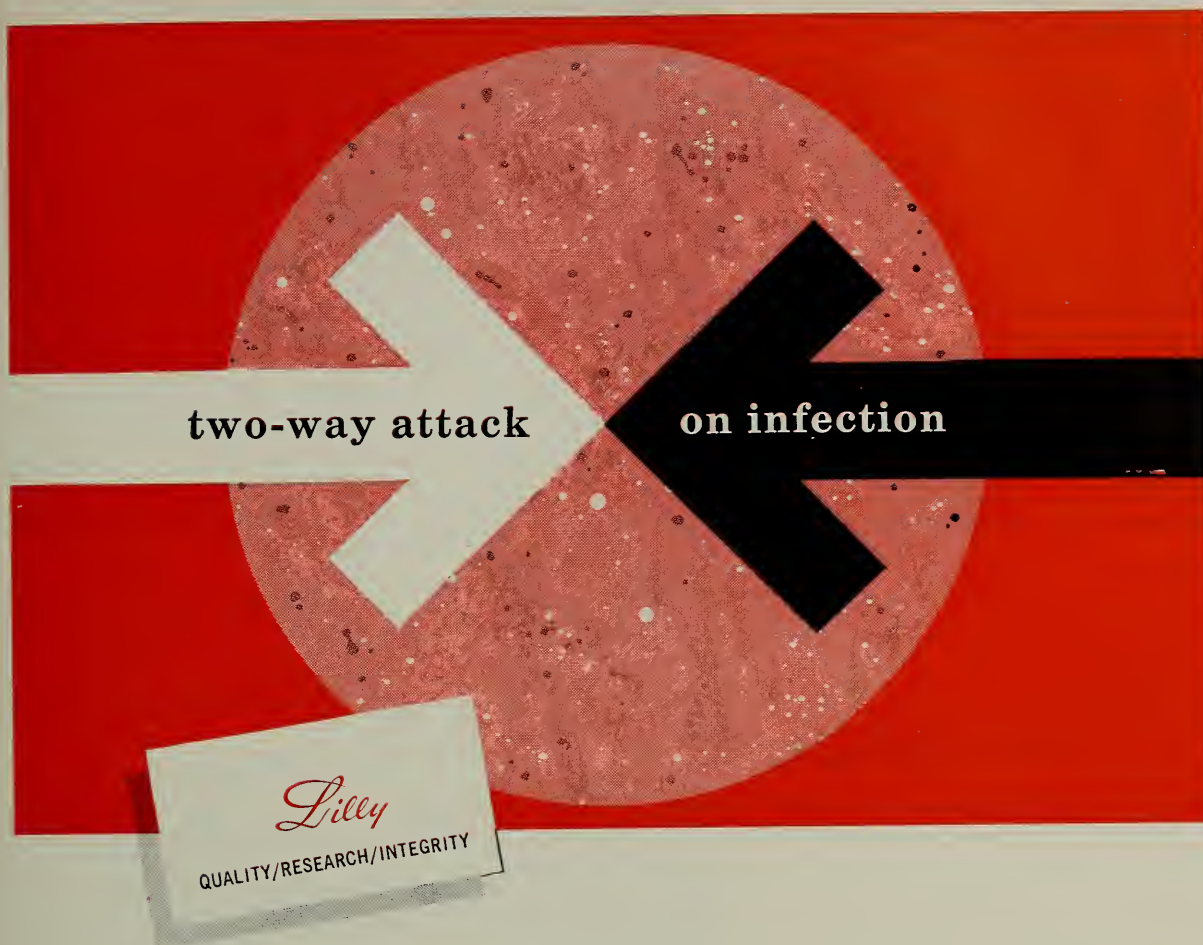
LOS ANGELES COUNTY HOSPITAL HOUSE STAFF MANUAL—7th Edition—F. William Wagner, Jr., M.D., Editor; The Cunningham Press, Alhambra, California. 728 pages.

MANUAL OF FRACTURES AND DISLOCATIONS, A—Third Edition—Barbara Bartlett Stimson, A.B., M.D., Med. Sc.D., F.A.C.S., Director of Department of Bone and Joint Surgery, St. Francis Hospital, Poughkeepsie, New York. Lea & Febiger, Philadelphia, 1956. 224 pages, \$4.50.

OBSTETRIC PRACTICE—Harold Speert, M.D., Associate in Obstetrics and Gynecology, Columbia University College of Physicians and Surgeons; Assistant Attending Obstetrician and Gynecologist, The Presbyterian Hospital; Alan F. Guttmacher, M. D., Director of the Dept. of Obstetrics and Gynecology, the Mount Sinai Hospital, Clinical Professor of Obstetrics and Gynecology, Columbia University College of Physicians and Surgeons, Landsberger Medical Books, Inc., New York, 1956. 478 pages, \$7.00.

PREPARING FOR MOTHERHOOD—Samuel R. Meaker, M.D., Professor Emeritus of Gynecology, Boston University, School of Medicine. The Year Book Publishers, Inc., Chicago, Illinois, 1956. 196 pages, \$2.00.

(Continued on Page 90)



tablets

'V-Cillin-Sulfa'

(PENICILLIN V WITH TRIPLE SULFAS, LILLY)

...combine the superior oral penicillin
and three sulfonamides

'V-Cillin-Sulfa' provides you greater control over a wider range of micro-organisms. 'V-Cillin' (Penicillin V, Lilly) and sulfas used concurrently produce faster and more effective antibacterial action in certain infections. In general, the combination is most beneficial in mixed infections, infections due to bacteria only moderately susceptible to either agent, and conditions in which bacterial resistance might develop.

The much higher penicillin blood levels produced by 'V-Cillin' and the effectiveness and safety of the triple sulfas make 'V-Cillin-Sulfa' your most valuable preparation of its type.

DOSAGE: 1 to 2 tablets q.i.d.

SUPPLIED: Each tablet provides 125 mg. (200,000 units) 'V-Cillin' plus 0.5 Gm. sulfas—equal parts of sulfadiazine, sulfamerazine, and sulfamethazine.

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ELI LILLY AND COMPANY • INDIANAPOLIS 6, INDIANA, U. S. A.

Physicians Note Reduction in Operative Risks for Aged

(Continued from Page 82)

Heart-lung diseases also have become less important in determining operative risk for the aged. In fact, except for some very serious conditions which increase the risk regardless of age, the cardiac-pulmonary condition of the aged patient has little effect on operative risk, they said. Conditions which have an effect at any age are angina pectoris, repeated myocardial infarction, uncontrolled cardiac failure, and malignant hypertension.

BOOKS RECEIVED

(Continued from Page 86)

PSYCHOPATHOLOGY OF CHILDHOOD — Edited by Paul H. Hoch, M.D., New York State Psychiatric Institute; College of Physicians and Surgeons, Columbia University, New York City. Joseph Zubin, Ph.D., New York State Psychiatric Institute; Dept. of Psychology, Columbia University, New York City. Proceedings of 44th Annual Meeting of the American Psychopathological Assn. held in New York City, June, 1954. Grune & Stratton, New York, 1955. 303 pages, \$6.00.

YEAR BOOK OF DRUG THERAPY—1955-1956 Series— Harry Beckman, M.D., Director, Department of Pharmacology, Marquette University Schools of Medicine and Dentistry. The Year Book Publishers, Inc., 200 East Illinois St., Chicago, 1956. 560 pages, \$6.00.

1956 ANNUAL SESSION

April 29 - May 2, 1956

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Trasentine®-Phenobarbital

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mild sedation
visceral spasmolysis
mucosal analgesia

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50 mg. Trasentine® hydrochloride (adiphenine
hydrochloride CIBA) and 20 mg. phenobarbital.

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ACHROMYCIN*

Tetracycline Lederle

in the treatment of

respiratory infections

January and his associates¹ have written on the use of tetracycline (ACHROMYCIN) to treat 118 patients having various infections, most of them respiratory, including acute pharyngitis and tonsillitis, otitis media, sinusitis, acute and chronic bronchitis, asthmatic bronchitis, bronchiectasis, bronchial pneumonia, and lobar pneumonia. Response was judged good or satisfactory in more than 84% of the total cases.

Each month there are more and more reports like this in the literature, documenting the great worth and versatility of ACHROMYCIN. This antibiotic is unsurpassed in range of effectiveness. It provides rapid penetration, prompt control. Side effects, if any, are usually negligible.

No matter what your field or specialty, ACHROMYCIN can be of service to you. For your convenience and the patient's comfort, Lederle offers a *full* line of dosage forms, including

ACHROMYCIN SF

ACHROMYCIN with STRESS FORMULA VITAMINS. Attacks the infection—defends the patient—hastens normal recovery. For severe or prolonged illness. Stress formula as suggested by the National Research Council. Offered in Capsules of 250 mg. and in an Oral Suspension, 125 mg. per 5 cc. teaspoonful.



For more rapid and complete absorption.
Offered only by Lederle!

dry-filled sealed capsules

Each ACHROMYCIN SF CAPSULE contains:

ACHROMYCIN Tetracycline.....	250 mg.
Ascorbic Acid (C).....	75 mg.
Thiamine Mononitrate (B ₁).....	2.5 mg.
Riboflavin (B ₂).....	2.5 mg.
Niacinamide.....	25 mg.
Pyridoxine (B ₆).....	0.5 mg.
Folic Acid.....	0.375 mg.
Calcium Pantothenate.....	5 mg.
Vitamin K (Menadione).....	0.5 mg.
Vitamin B ₁₂	1 mcgm.

¹January, H. L. et al: Clinical experience with tetracycline. *Antibiotics Annual* 1954-55, p. 625.



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*REG. U.S. PAT. OFF.

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CLASSIFIED ADVERTISEMENTS

(Continued from Page 94)

OFFICES FOR RENT OR LEASE (Continued)

FOR RENT—Sacramento, California. Central location, 1,000 sq. ft., ground floor, 8 rooms. Very fine for general or specialty practice. Fully equipped, except X-Ray and Cardiograph. Adequate parking. Reasonable rent on lease. Large list of patients. Write or telephone Gilbert Clark, M.D., Kaiser Hospital, Vallejo, California.

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FOR RENT: Prominent corner, used for 24 years by doctors. Suitable for dentist. Three large rooms, hot and cold water. Car passes every two seconds on average. Adjoining lot is landscaped, making this corner stand out prominently. Population 33,000. S. M. Mann, M.D. (Retired), 10 East Fifth Street, National City, California.

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FOR SALE—FULLY EQUIPPED OFFICE for general practice, located in the fastest growing area of Orange County, California. Very low rent. Reason—sudden illness. Box 91,820, California Medicine.

California Medical Association Annual Session Meetings and Entertainment Ambassador Hotel, Los Angeles

SUNDAY, APRIL 29

Woman's Auxiliary to the California Medical Association Reception—East and West Venetian rooms—6:00-8:00 p.m.—Honoring Mrs. Sidney J. Shipman, wife of the President of the C.M.A. All doctors and their wives are cordially invited.

California Society of Allergy Reception and Dinner—Nordic Room, Beverly-Hilton Hotel, Beverly Hills, 6:30 p.m.
Medical Assistants Luncheon—Lido Room, 12:15 p.m.
Orthopedic Section Luncheon—Dolphin Court, 12:15 p.m.

MONDAY, APRIL 30

President's Dinner Dance—Cocoanut Grove, 8:00 p.m. Formal dress, optional. Tickets will be on sale in the main lobby of the hotel.

C.M.A. Past Presidents' Lunch—Dolphin Court, 12:15 p.m.

Alumni-Faculty Association of the U. C. School of Medicine Luncheon—Lido Patio, 12:15 p.m.

California Society of Allergy Luncheon—Regency Room, 12:15 p.m.

TUESDAY, MAY 1

Bureau of Medical Economics—Grove Lounge, 10:00 a.m.

Woman's Auxiliary Luncheon—Cocoanut Grove, 12:30 p.m.—Honoring Mrs. Matthew N. Hosmer, Mrs. Paul Blaisdell, Past State Presidents, and members of the State Advisory Board. For tickets inquire at the Woman's Auxiliary Registration Desk.

State Board of Health—Regency Room, 9:00 a.m.

California Chapter of the American Academy of Pediatrics—Meeting and dinner, West Venetian Room and Venetian Room Foyer, 6:30 p.m.

WEDNESDAY, MAY 2

Bureau of Medical Economics—Garden Room, 10:00 a.m.

California Society of Anesthesiology—Grove Lounge, 1:00 p.m.



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Confidence McCall's
Desert-Air* Lamps
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in critical cases

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the nonmercurial diuretic

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"Premarin"®
(conjugated estrogens, equine)

Insurance Records Show Long-Term Outlook

Insurance company records may help physicians to focus attention on the most significant illnesses and aid them in physical exams and "history-taking."

A comprehensive investigation of the experience of 27 companies from 1935 through 1950 with some 625,000 persons with various types of impairment was reported in a recent issue of the *Journal of the American Medical Association* by Dr. William Bolt, chief medical director of the New York Life Insurance Company, and Edward A. Lew, actuary statistician of the Metropolitan Life Insurance Company, both of New York.

The report was prepared to give doctors some idea of the long-range outlook as influenced by heart murmur, phlebitis, epilepsy, chronic bronchitis, gastric and duodenal ulcers, gallbladder and kidney disorders, cesarean section, and family histories of cardiovascular-renal diseases.

The study showed that persons with these impairments have a somewhat shorter life expectancy than do persons without them. However, some of the observations go back to 1935, and probably do not "fully reflect" the results of newer methods of treatment, the authors said. This is especially true in heart murmur, epilepsy, and cesarean section.

The insured persons included mainly white middle-class men living in urban areas. They were between the ages of 30 and 64 when they were examined for insurance.

The proportion of persons in each classification surviving for 15 years after examination for insurance was compared to the "standard risk" group, approximately 92 per cent of whom lived 15 years after examination.

The study showed the following:

Persons with apical systolic heart murmur had "an appreciably lower" survival rate than standard risks. Surviving 15 years were 85.5 per cent of persons with heart murmur but no record of rheumatic or streptococcal infection and 84.2 per cent of those with a history of such infections.

Enlargement of the heart accompanying such a murmur adversely affected survival in proportion to the degree of enlargement. Survivorship dropped from 85.5 per cent among persons with normal heart size to 78 per cent among those with slight enlargement to 66.1 among those with moderate enlargement.

The number of deaths among persons with heart murmur and normal heart size was about double that among standard risks. However, death rates have decreased "materially" over the last 25 years.

Over the 15-year period the number of deaths among persons with a history of phlebitis was 1.4 times that among standard risks.

Persons with a family history of diseases of the heart, veins and kidneys died 1.4 times more fre-

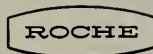
(Continued on Page 14)

Gentle

is the word
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Mild, yet positive in
action, Noludar 'Roche'
is especially suited
for the tense patient
who needs to relax
and remain clear-headed
—or for the insomniac
who wants a refreshing
night's sleep without
hangover. Not a
barbiturate, not habit-
forming. Tablets,
50 and 200 mg; elixir,
50 mg per teasp.

Noludar® brand of methyprylon
(3,3-diethyl-5-methyl-
2,4-piperidinedione)



Original Research in
Medicine and Chemistry

Insurance Records Show Long-Term Outlook

(Continued from Page 10)

quently than standard risks. The number of deaths from cardiovascular-renal conditions in the group with a family history of the diseases was almost double the number from the same cause in the normal group.

The proportion of a highly select group of 1,000 epileptics who survived 15 years was distinctly less than for standard risks—84.3 per cent. The mortality rate was about two and a half times that of standard risks, with deaths from accidents, suicide, and epil-

epic seizures excessive. However, the death rate among epileptics was lower in this survey than in a similar one covering 1909-1928.

The mortality of persons with chronic bronchitis was nearly double (1.9 times) that of standard risks. Compared to standard risks, deaths from pneumonia were about eight times greater in this group, while deaths from tuberculosis, cancer, and other respiratory diseases were about five times greater.

Comparisons with earlier studies showed that death rates among persons with medically treated ulcers (without a history of hemorrhage) have de-

(Continued on Page 18)

THE POTTENGER SANATORIUM and CLINIC

For Diseases of the Chest

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(Established 1903)

CHOICE ROOMS and BUNGALOWS. Rates moderate and include routine medical and nursing services, interim physical, x-ray and laboratory examination, ordinary medicines and treatments.

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Twenty-four hour medical and nursing care.

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A NEW EXPERIENCE IN MOOD ELEVATION

Replaces despondency with equanimity
...without euphoria...without jitters...without
barbiturate drag.

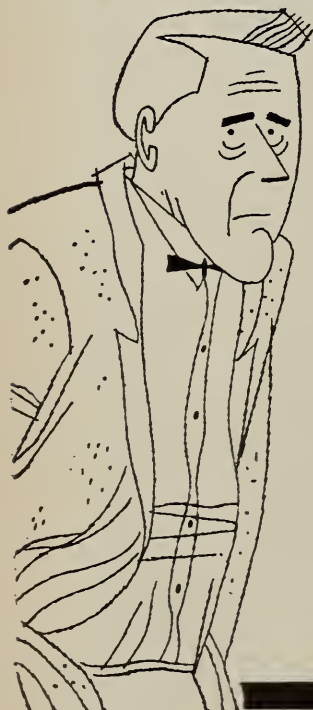
Safe for the hypertensive, too.

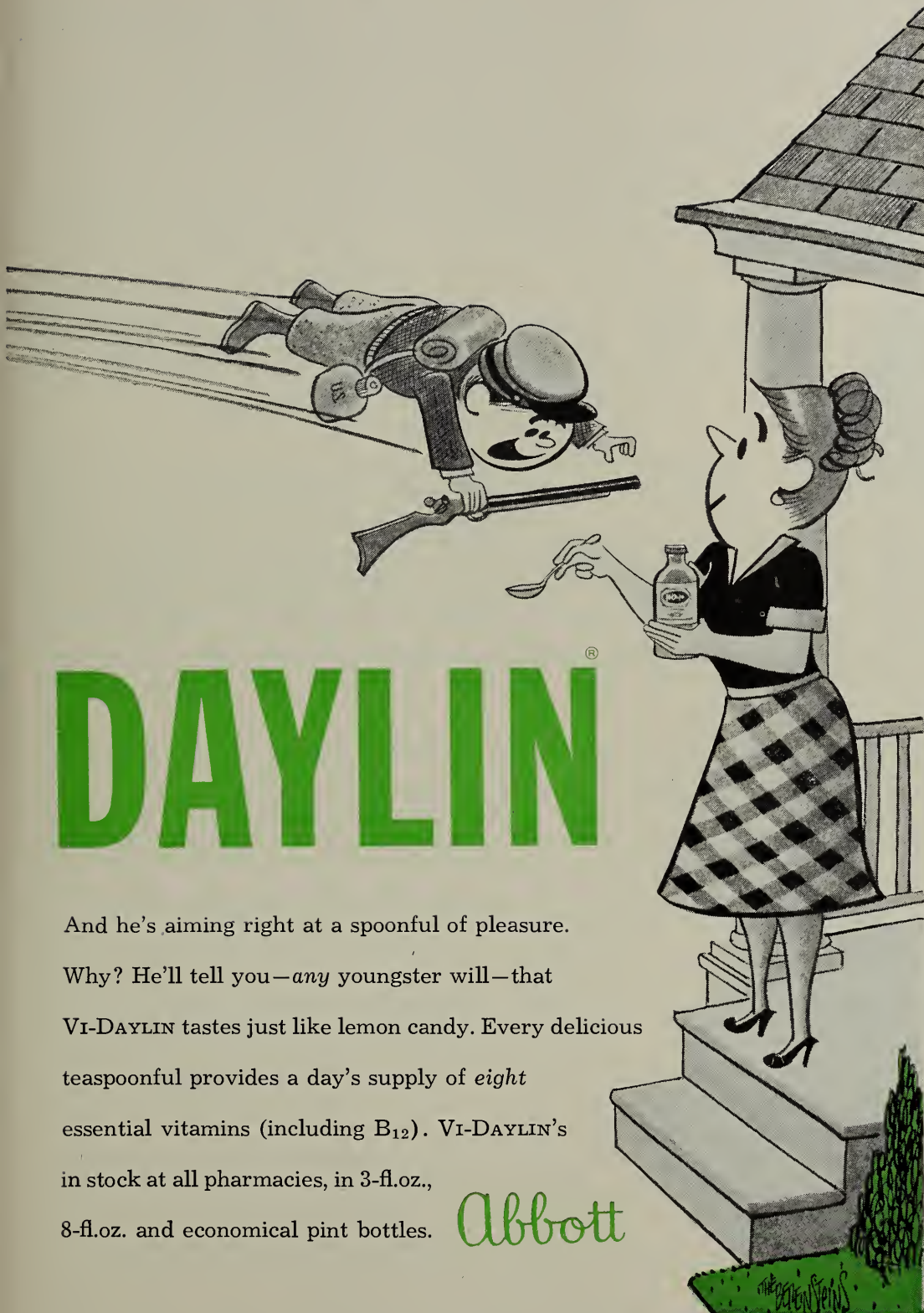
DOSAGE: For mood elevation, initially
1 to 2 tablets after breakfast
and lunch.

Riker

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FOR OBESITY Rauwidrine curtails appetite without
the "black mood" feeling of deprivation.





DAYLIN[®]

And he's aiming right at a spoonful of pleasure.
Why? He'll tell you—*any* youngster will—that
VI-DAYLIN tastes just like lemon candy. Every delicious
teaspoonful provides a day's supply of *eight*
essential vitamins (including B₁₂). VI-DAYLIN's
in stock at all pharmacies, in 3-fl.oz.,
8-fl.oz. and economical pint bottles.

Abbott

Insurance Records Show Long-Term Outlook

(Continued from Page 14)

creased fully as much as those among standard risks. The chances of surviving 15 years were greater for persons whose ulcers had been medically treated than for those surgically treated.

The mortality rate for persons with a history of gallbladder trouble was somewhat greater than for normal insured persons.

Of the more than 7,000 women who had had a cesarean section, 95.9 per cent survived 15 years, compared with 97.4 per cent of the standard risks. The difference was almost entirely accounted for by deaths from childbirth complications.

Usually Fatal Skin Disease Controlled by ACTH

Further evidence of the value of corticotropin (ACTH) in treating a skin disease which usually results in death was reported in a recent issue of the *Journal of the American Medical Association*.

Dr. Richard B. Stoughton, Chicago, used the synthetic hormone for pemphigus vulgaris, a chronic and usually fatal disease of unknown origin. It causes blisters on the skin and involves the general health of the patient.

He gave corticotropin to nine patients for periods ranging from one and a half to four and a half

(Continued on Page 26)



ALUM ROCK HOSPITAL SAN JOSE, CALIFORNIA

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A NON-PROFIT HOSPITAL FOR THE TREATMENT OF
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Surgical Anatomy & Clinical Surgery, Two Weeks, June 18
Surgery of Colon & Rectum, One Week, June 18
General Surgery, Two Weeks, September 10
Thoracic Surgery, One Week, June 4
Esophageal Surgery, One Week, June 11
Breast & Thyroid Surgery, One Week, June 18
Gallbladder Surgery, Ten Hours, June 25
Fractures & Traumatic Surgery, Two Weeks, June 18
Varicose Veins, Ten Hours, June 18

GYNECOLOGY—Office & Operative Gynecology, Two Weeks, June 18
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MEDICINE—Electrocardiography & Heart Disease, Two-Week Basic Course, July 9
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RADIOLOGY—Diagnostic X-Ray, Two Weeks, September 17
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PEDIATRICS—Neurological Diseases: Cerebral Palsy, Two Weeks, June 18

UROLOGY—Two-Week Course October 8
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These are your patients: Prominent in your practice are those patients not demonstrably ill, but always below par — mentally, physically, emotionally. These are your "problem patients." How to treat them? Hirsch¹ has furnished a clue. He points out an ever present condition:

" . . . a depletion of energy up to or beyond
the body's ability to spring back."

The fatigue syndrome is often linked with subnormal muscle and nerve phosphocreatine readings.² Betasyamine contains betaine and glycocyamine, precursors of phosphocreatine. Containing no unphysiologic sedative or stimulant drug, Betasyamine offers promise wherever increased burdens and strains have undermined the energy reserve.

Fatigue and depression frequently result from the rigid therapeutic and dietary programs required in diabetes, allergy and obesity management. Difficult postsurgical and obstetrical periods — prolonged infectious sieges — keep patients discouraged and debilitated — unable to "spring back." Betasyamine, included in the recovery programs of these and many other conditions characterized by low energy states, provides welcome relief from depressing and taxing exhaustion. Betasyamine helps to create a new mood . . . for a fresh outlook.

Average Dosage: 3 Effervescent Packets; 3 tablespoonfuls Emulsion; or 15 Tablets (three times daily at mealtimes).
Supplied: Effervescent Packets (new) — 24's; Emulsion — 16 fl.oz.; Tablets — 200's.

1. Hirsch, S.: New York J. Med. 55:1170 (April 15) 1955. 2. Dixon, H. H., and others: West. J. Surg. 60:327 (July) 1952.

Amino Products Division • International Minerals & Chemical Corporation • Chicago • San Francisco

for a fresh outlook

Big Attendance at American Medical Association Rural Health Meeting

You can take it from Dr. F. S. Crockett that the eleventh National Conference on Rural Health, held in Portland, Oregon, recently, was the best ever held, at least from an attendance standpoint.

Dr. Crockett, from Lafayette, Ind., and co-founder with Mrs. Charles Sewell, Otterbein, Ind., of the A.M.A. Council on Rural Health, said there were more practicing physicians, farmers, and lay people at the Portland meeting than at any previous session. Despite the unusually bad traveling weather, many farmers from throughout Oregon and Washington came in for the meeting. The big attendance was due largely to the advance work carried on by the Oregon State Medical Society and the Oregon State Rural Health Council.

Highlight of the meeting was the annual banquet, attended by about 400, including five members of the council, Dr. Crockett, and Mrs. Sewell, who is now 75. Speaking at the dinner, A.M.A. President-elect Dwight H. Murray cited several successful rural health programs. He urged all physicians to adopt such community activities as "a personal responsibility."

"Much of the phenomenal medical progress of the past 25 years has been achieved because of the support—both moral and financial—obtained from the

general public," he said. "The continued interest of the public in medical affairs will grow as the interest of physicians in matters outside the medical profession increases. That is why I am calling on doctors everywhere I go to mix with their neighbors and to share in their interests and their projects."

Also speaking at the banquet was Louis A. Rozzoni, Clements, Calif., president of the California Farm Bureau Federation. Rozzoni, a native Italian, sketched his own story of successes and failures as a businessman and farmer and said it is not true that "only those who are successful speak well of this country."

Rozzoni said there are "always people who want something for nothing" and that we should stop trying to solve economic problems by using "magic words such as 90 per cent parity," and "old slogans I heard so long ago I thought I had forgotten them—like big versus small, privileged versus underprivileged."

He said those who try to solve the country's economic problems by taking from those who have and giving it to those who have not will solve no one's problems "except the Socialists who have been trying to do that for years."

—A.M.A. Secretary's Letter



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integrated relief...
mild sedation
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TABLETS (yellow, coated), each containing
50 mg. Trasentine® hydrochloride (adiphenine
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EMOTIONAL FATIGUE *

MERATRAN Profile

Sex: *Male* Age: *43* Occupation: *Salesman*

Chief Complaint: *tired most of the time, could not get work done*

Symptoms: *numerous functional symptoms (dyspnea, palpitations), irritability.*

Observations: *this very successful salesman feared that he was inadequate to the task of maintaining his high status -- somatic complaints a function of his emotional doubt.*

Treatment: *sedation had failed. Placed on Meratran, 6 mg. daily for about 4 months.*

Response: *irritability disappeared, working capacity increased, somatic complaints relieved.*

Result: *excellent*

One more case in point for

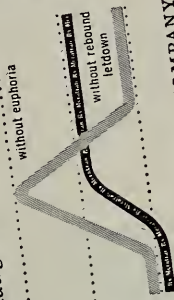
Meratran

Pipradol Hydrochloride

in functional fatigue and mild depression

without euphoria

Meratran restores your emotionally tired and depressed patients to their usual level of alertness, interest and productivity.



In doses individualized to the patient, Meratran produces a subtle, comfortable onset of action, prolonged effectiveness, and well-being without jitters or apprehension. There is no significant effect on blood pressure or respiration, little or no insomnia, no effect on normal appetite, no tolerance or drug habituation; wide range of safety.

Dose: 6 mg. daily, adjusted downward to patient need.

THE WILLIAM S. MERRELL COMPANY
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Another exclusive product of original Merrell research

* Case history, from the actual file of an eminent physician, photo professionally posed.

Usually Fatal Skin Disease Controlled by ACTH

(Continued from Page 18)

years. All but one of the patients probably would have died of the disease if they had not received corticotropin.

Corticotropin never failed to suppress the blister formation, although it had no effect on the underlying cause of the disease. Side effects from the hormone were "surprisingly" few, Dr. Stoughton said.

All the patients had periods during which the disease process was quiet and required no cortico-

tropin, but they also had flareups during which greatly increased doses were needed to control the disease. Generally, however, dosage needs were "remarkably constant," which means treatment except for occasional hospitalization can be continued on an outpatient basis indefinitely, he said.

Adequate control of pemphigus vulgaris with corticotropin for indefinite periods of time seems entirely possible, Dr. Stoughton concluded.

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In-Patient services for acute and chronic emotional illnesses

Electric shock
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1. To control cough 1/64 gr. Dilaudid is equivalent to 1/4 gr. codeine.
2. For analgesia 1/20 gr. Dilaudid will usually replace 1/4 gr. morphine or 1 gr. codeine. Dilaudid is given for pain relief, not for hypnosis.

- Dilaudid may be habit forming, and requires a narcotic prescription.

Dilaudid hydrochloride is available in various strength hypodermic tablets, in ampules, oral tablets and powder.

Dilaudid® brand of Dihydromorphine, a product of E. Bilhuber, Inc.

Rx in cough
Dilaudid HCl . . . gr. ss
Elix.Terp.Hydr. . . . $\frac{5}{8}$ iv
One teaspoonful every
3 or 4 hours. Children
half this dose.

Dilaudid

BILHUBER-KNOLL CORP. distributor

for pain
and cough

ORANGE, NEW JERSEY

Researchers Report on Live Polio Virus Immunization

A recent study has given further evidence that live polio viruses given by mouth may some day be used for immunization against the disease—but only after slow, steady, and cautious research.

The investigation, initiated by Lederle Laboratories, Pearl River, N. Y., is reported in a recent issue of the *Journal of the American Medical Association*. It is one of a series of studies by a group of New York and California researchers on the possibilities of using live, attenuated polio viruses.

"A certain amount of optimism" about the eventual usefulness of the method is justified by the findings of the study, they said. The idea of live virus immunization can be advocated only if all the persons receiving the virus respond by forming antibodies, they said. All the children studied did.

Two live virus strains, SM (type 1) and TN (type 2), were given to a group of children in a state institution for mentally defective children. Permission to give the viruses was obtained from each child's parents. Type 1 was given in capsule form and type 2 in liquid form.

None of the children showed any outward signs of polio. However, all who received the SM strain carried live viruses in the intestinal tract for varying

lengths of time. Only a few carried the TN strain viruses.

Because the viruses live in the intestinal tract and may act as sources of contagion, public health authorities have objected to the widespread use of live, attenuated viruses in clinical trials. But the study showed that SM attenuated viruses "are not very contagious," the authors said.

In an arrangement especially set up so that viruses might be transmitted from immunized children to nonimmunized children, only five of 15 contracted viruses, and then under "the most intimate of circumstances." None of the nurses became infected.

It appeared that capsules may be the best way to administer the viruses and prevent contagion. By using capsules, the mouth and throat are bypassed and only the lower end of the alimentary tract is left as a source of contagion. The practice of simple personal hygiene may completely prevent transmission of the viruses, they said.

A drug which would control the excretion of viruses would be helpful, but a satisfactory one is yet to be found, the authors said. They gave three drugs, mild mercurous chloride, albumin tannate (Tannalbin), and diiodohydroxyquin (Diodoquin) to some of the children. Mild mercurous chloride

(Continued on Page 42)

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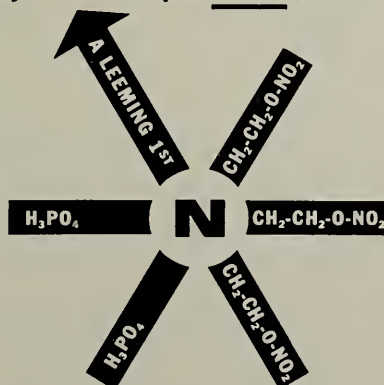
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Dihydrostreptomycin	14.2	25.9	12.5	38.7	27.2	28.0	6.6
Antibiotic B	3.5	0	0	66.1	63.6	0	2.2
Penicillin	3.5	0	0	27.4	39.3	0	0
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REFERENCES: 1. Waisbren, B. A., and Crowley, W.: A.M.A. Arch. Int. M. 95:653, 1955. 2. Perry, R. E., Jr.: North Carolina M. J. 16:567, 1955.

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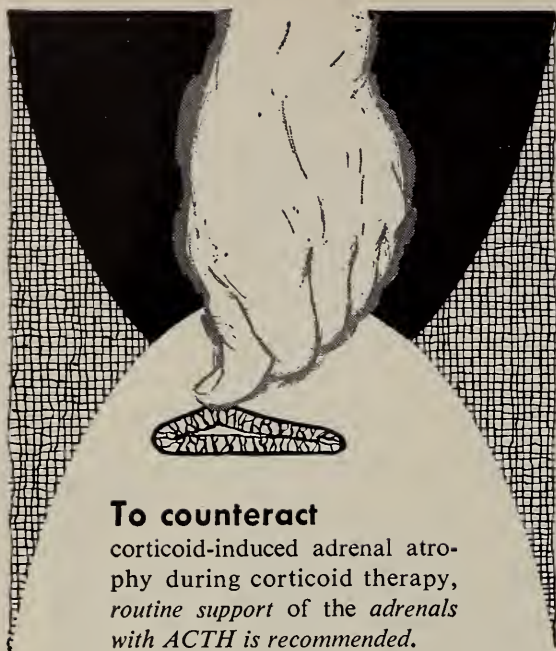
Bibliography

1. Anonymous. 2. Rosenthal, P.: Geriatrics 10:382 (August) 1955. 3. Lansing, A. I.: Symposium on Problems of Gerontology, National Symposium Series No. 9 (August) 1954. 4. Mason-Hohl, E.: Quoted in W. Va. Med. J. 51:16 (Janu-

ary) 1955. 5. Rosenberg, H. R., et al.: Arch. Biochem. and Biophys. 49:263, 1954. 6. Bricker, M., Mitchell, H. H. and Kinsman, G. M.: J. Nutrition 30:269, 1945. 7. Masters, W. H. and Ballew, J. W.: Geriatrics 10:1, 1 (January) 1955.



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Physicians' Advisory Committee for Television, Radio, and Motion Pictures

The American Medical Association has formed a Physicians' Advisory Committee for Television, Radio, and Motion Pictures.

Physicians, serving on both the Los Angeles and New York committees, will assist network script supervisors, producers, and writers in the preparation of television and radio programs on medical subjects. The service, provided without charge, will assure technical accuracy of medical information disseminated to the general public.

This new project supplements the same type of service which has been carried on by the American Medical Association in the past through the office of Dr. W. W. Bauer, director of the Bureau of Health Education.

The committees in both cities, where network television and radio production is centered, will provide three types of service: (1) Checking of routine medical facts; (2) Reviewing of complete scripts, and (3) Providing on-the-set technical medical advisors during production of a TV or radio program.

In Los Angeles, requests for technical assistance will be referred to Dr. Robert W. Gentry, chairman, 1925 Wilshire Boulevard, Los Angeles 57, and the New York contact is Dr. Gerald D. Dorman, chairman, 51 Madison Avenue, New York 10.

Besides Dr. Gentry, the Los Angeles committee will be made up of Drs. E. Vincent Askey, American Medical Association Speaker of the House of Delegates, James F. Regan, William D. Evans, Eugene F. Hoffman, Richard O. Myers, Ian G. Macdonald, Dudley M. Cobb, Jr., and Edward T. Tyler.

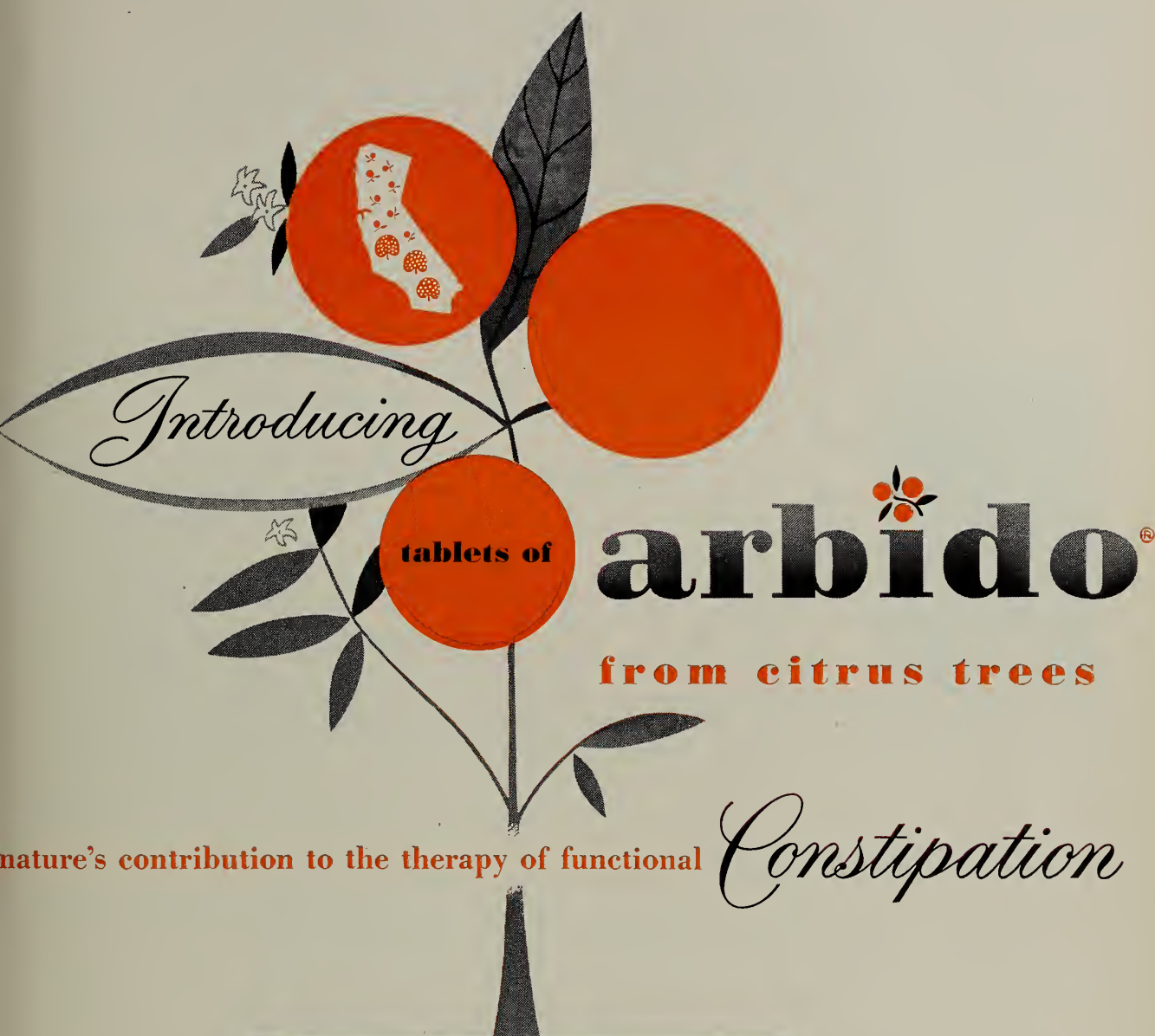
In New York, besides Dr. Dorman, the committee will consist of Drs. Henry I. Fineberg and Renato J. Azzari.

Reviewing of complete scripts will be handled by the committees as a whole. If major revisions are necessary, the committees will meet in consultation with the writer. If physicians are needed to serve as technical advisors on the set or in radio or TV studios, they will be appointed by the respective committees.

Any producer desiring to use the name of the American Medical Association in connection with a program will be bound by the "Guiding Principles for Participation in Telecasts and Broadcasts" as adopted by the Board of Trustees.

Leo Brown, American Medical Association public relations director, said that appointment of the committees in the two key cities "marks another step in the American Medical Association's continuous effort to insure technical accuracy in TV and radio programs centering about medicine and the profession."

—A.M.A. Secretary's Letter



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Researchers Report on Live Polio Virus Immunization

(Continued from Page 31)

seemed to have some effect in suppressing virus excretion, but it also produced unfavorable side effects.

The study also showed that the administration of immune serum globulin has no effect on the duration of the intestinal carrier state nor on the antibody development. Children who had been immunized with live viruses several years before again became carriers of the live viruses, although the amount of antibody remained the same.

"Mixed" feeding with types 1 and 2 often resulted

in interference, with type 1 virus apparently gaining the "upper hand." Antibodies developed against type 1 but not against type 2. The solution apparently is to give the two types about a month apart.

The future of live virus immunization is bright, they said. The number of immunizations (150 children with SM strain and 75 with TN strain) without accident has given "increased confidence" in the use of certain live, attenuated strains.

"With this slow, but steady and cautious, progress in research, it is hoped that one day the living,

(Continued on Page 50)

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Vitamin B ₁₂	15 mcgm.
Folic Acid	3 mg.



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Many "Seniles" Actually Need Mental Hospital Care

Experience in one state has shown that transfer of so-called "senile" patients to other facilities won't solve the problem of mental hospital crowding.

It won't necessarily improve these patients' condition either, a transfer program and survey of three Connecticut mental hospitals showed. It was found that few aged patients are in those hospitals only because of the infirmities of age. More than half of them are there because of actual mental illness which requires the safeguards and facilities of psychiatric care.

Drs. Sidney Shindell and Elizabeth Cornfield, Rocky Hill, Conn., reported in a recent issue of the *Journal of the American Medical Association* on the work of the Connecticut Commission on the Care and Treatment of the Chronically Ill, Aged, and Infirm.

Since November, 1954, the commission in co-operation with the Connecticut Department of Mental Health has carried on a program of transferring a number of elderly patients from the state's mental hospitals to a chronic illness facility.

The survey showed there was "an extremely small" number of aged patients who might be suitable for transfer to chronic illness facilities, the authors said.

In fact, only 6.5 per cent of more than 10,000 patients (of whom about 4,000 were past 60) could be considered for care elsewhere, and half of this group had already been removed either to their own homes or to private nursing homes, where they were under hospital supervision.

Only 1.5 per cent of all the patients consisted of senile patients who could be cared for elsewhere, they said, concluding that patients of this type have not contributed to crowding of Connecticut hospitals.

Persons over 60 constituted about 40 per cent of the total mental hospital population, but a large number of them grew old while there. Less than half of them were more than 60 years old when admitted, and many of these had been hospitalized once or more before the age of 60, the authors said.

Only about 300 of the more than 4,000 aged patients in the three state mental hospitals were found to be suitable for transfer to the chronic illness facility. And even after transfer some had to be returned to the hospitals because they did not adjust to the new situation.

The rest of the aged patients were not considered suitable for transfer because they were already in nursing homes or their own homes; the families refused permission for transfer; hospital staffs felt the psychiatric outlook was too poor, or they showed behavior that was undesirable or dangerous to themselves and others. The authors concluded that chronic illness facilities represent only one method of providing appropriate care for aged patients who might be discharged from the hospitals.



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Researchers Report on Live Polio Virus Immunization

(Continued from Page 42)

attenuated viruses will find their proper place in the line of combat against poliomyelitis," they concluded.

Making the report were Hilary Koprowski, M.D., Thomas W. Norton, and Mrs. Doris J. Nelsen of American Cyanamid Company Research Division, Lederle Laboratories, Pearl River, N. Y.; George A. Jervis, M.D., Thiells, N. Y., of the New York State Department of Mental Hygiene; Thomas L. Nelson,

M.D., Eldridge, Calif., of Sonoma State Hospital, California State Department of Mental Hygiene and the University of California School of Medicine, and David L. Chadwick, M.D., and Dr. Karl F. Meyer, San Francisco, of the University of California School of Medicine.

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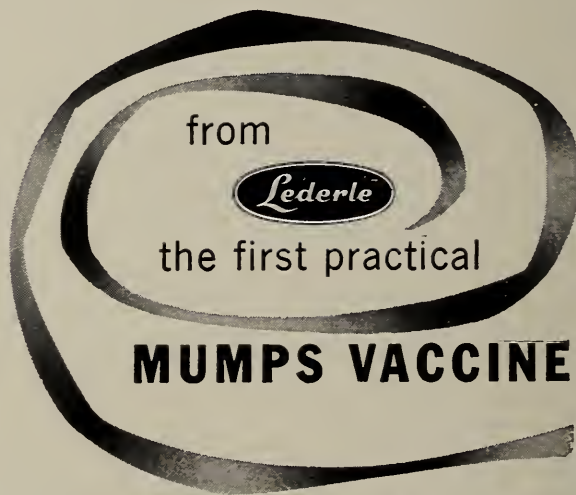
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MAY 1956

Number 5

Management of Erythroblastosis Fetalis

NATHAN J. SMITH, M.D., Los Angeles

ERYTHROBLASTOSIS FETALIS due to incompatibility of the Rh factor occurs once in every 200 births of white infants and is associated with a high incidence of serious morbidity and mortality. The problem is a serious and a frequent one encountered by all physicians practicing obstetric and pediatric medicine.

In recent years the basic pathogenesis of fetal erythroblastosis has been clearly defined. An Rh-negative woman is immunized by Rh-positive erythrocytes received from either a fetus or blood transfusion. The immunized mother produces anti-Rh agglutinins. The agglutinins traverse the placenta to the fetus where they cause destruction of the Rh-positive erythrocytes of the fetus and newly born infant. The course of events may result in a disease so severe as to cause fetal death, or on the other hand, only mild degrees of anemia may result. The extreme variation in the course of the disease only emphasizes the need for persistent vigilance on the part of the physician if optimal management of the problem is to be assured each patient.

In light of present knowledge a program for the practical management of the problem of erythroblastosis can be stated quite specifically.

- I. A careful history should be taken early in pregnancy for evidence of previous isoimmunization to a blood group antigen.
- II. The blood type (ABO and Rh) of each pregnant patient should be determined at an early prenatal visit.

• The practical management of the problem of erythroblastosis depends primarily on the prenatal determination of which pregnancies might result in an erythroblastotic infant. The physician primarily concerned with the care of the child must attend the delivery of every Rh-negative woman whose serum contains anti-Rh antibodies. At present, prompt confirmation of the suspected diagnosis immediately following birth and immediate exchange transfusion in infants with laboratory or clinical evidence of the disease are necessary to reduce morbidity and prevent kernicterus.

- III. Laboratory study for evidence of circulating antibodies should be done four to five weeks before term of each pregnancy of every woman who is Rh-negative.
- IV. Consultation should be obtained to suggest a program of further laboratory studies if a woman has had previous babies that were stillborn or that died soon after birth because of erythroblastosis.
- V. Certain aspects of the delivery of all Rh-negative women in whom antibodies are present demand special attention. Except in most unusual circumstances, early induction of labor is to be avoided.
- VI. At the time of birth a physician responsible only for the immediate clinical and laboratory evaluation of the infant should be present. Evidences of erythroblastosis fetalitis should be looked for in the physical examination.

Assistant Professor of Pediatrics, University of California Medical Center, Los Angeles 24.

A specimen of blood from the umbilical cord should be examined for the following:

- (a) Hemoglobin, bilirubin, normoblast and reticulocyte levels.
- (b) Blood type.
- (c) Antiglobulin (Coombs' test).

VII. Conservative treatment for infants having either a clinical or laboratory diagnosis of erythroblastosis is exchange transfusion.

VIII. Critical clinical and laboratory follow-up observation is essential to determine the necessity for further specific therapy.

The History

A carefully taken history concerning evidence of blood group isoimmunization is an essential part of the early care of every pregnant woman. It is important to know whether or not the mother has ever been "exposed" to erythrocytes of an antigenic composition different from her own. Has there been previous parenteral administration of blood? Have there been previous pregnancies, and if so, what was the outcome? Have any of the infants been still-born? Abortions before the 16th week are not due to blood group incompatibility, but if an erythrocyte antigen were present the mother might be sensitized to it even though abortion occurred very early. If a previous pregnancy has resulted in a stillborn infant or in an infant afflicted with unusual jaundice or with anemia, the possibility of blood group isoimmunization should be considered.

The history takes on added importance if the mother is known to have had previous infants with erythroblastosis fetalis. The severity of the disease in the previous infants is the best indication of the severity of the disease to be expected in subsequent babies.⁵

The Blood Type and Its Significance

Regardless of the historical data available, the blood type of each pregnant woman should be determined early in pregnancy. Over 90 per cent of clinically significant erythroblastosis is due to isoimmunization with the antigen D (Rh).^{*} Therefore, routine studies of pregnancy can be most practically limited to a consideration of this antigen. In 85 per cent of white women the blood type is Rh (D, Rh) positive. These women obviously cannot become isoimmunized to this antigen. The remaining 15 per cent are Rh-negative and may thus be immunized by exposure to the Rh antigen. The distribution of this Rh antigen is similar in males and females, 85 per cent of all white males are Rh-positive. Therefore, over 12 per cent of all marriages among caucasians in this country involve an

Rh-negative woman with an Rh-positive husband. Thirty-eight per cent of all males are homozygous for the gene responsible for the transmission of the Rh antigen and will father only Rh-positive children; 47 per cent are heterozygous for this gene and 50 per cent of their children will be Rh-positive.⁴ These figures clearly show that the possibility of blood group incompatibility is an everyday occurrence in an obstetrician's office.

Of the 12 per cent Rh-negative women whose husbands and babies are Rh-positive, only a small number will ever give birth to babies with erythroblastosis fetalis. Whether or not the infants have the disease will depend upon whether or not the mother becomes isoimmunized (that is, sensitized) and produces antibodies to the Rh antigen. To become so immunized, Rh-positive erythrocytes must enter the maternal circulation and the mother must be capable of producing antibodies to this antigen. Factors governing the ability of mothers to produce these antibodies are poorly understood. Although the small numbers of erythrocytes adequate for sensitization enter the maternal circulation during each pregnancy, it is well known that only *one in every twenty Rh-negative women* pregnant with an Rh-positive fetus will become immunized. The Rh-negative mother who has been given a single transfusion of Rh-positive blood will become immunized in 50 per cent of the instances, and, with repeated transfusions of Rh-positive blood, over 90 per cent of Rh-negative women will develop antibodies.

This information assumes considerable importance in everyday practice. The fact that 19 of every 20 Rh-negative women with Rh-positive husbands will never have infants with erythroblastosis can be very reassuring to an apprehensive, misinformed, Rh-negative woman. Likewise, the comparative readiness with which immunization results from the transfusion of Rh-positive erythrocytes into Rh-negative women should alert all physicians to the dangers of indiscreet use of transfusions and the importance of careful Rh typing of all blood transfused into female patients before or during the childbearing age.

Demonstration of Anti-Rh Antibodies

In the early weeks of pregnancy the obstetrician should have available the completed history and the patient's blood type. If the prospective mother is Rh-positive and the history reveals no abnormality with previous infants, the problem no longer assumes importance in the management of the pregnancy. If the mother is Rh-negative, the pertinent question to be answered is whether or not the mother has been or will become immunized against the Rh antigen during the course of pregnancy. To de-

^{*}By common usage the term Rh, when not more specifically identified, is synonymous with the letter D (Rh) and it is used as such in this discussion.

termine whether previous pregnancies, transfusions, or the current pregnancy have immunized a given obstetrical patient, the patient's serum should be studied for the presence of anti-Rh antibodies. Except in quite unusual circumstances, referred to later, it is most reliable and expedient to do a single antibody determination late in the course of each pregnancy in every Rh-negative woman. An antibody determination done during the 36th week of gestation will answer the question as to whether or not the patient has been sensitized and will give some indication as to the concentration of antibodies in her serum. Little is to be gained by the repeated determination of antibody titers during the pregnancy. That the titer does not increase is no assurance that the infant will not have erythroblastosis fetalis. In light of current knowledge, a rising titer does not alter the management of the problem. The only question that the laboratory studies can answer is whether or not a given woman has anti-Rh antibodies in her serum and thus might give birth to a diseased Rh-positive infant.

Prenatal Prognosis of Erythroblastosis Fetalis

The physician will often be tempted, or asked by the patient, to prognosticate the outcome of a given pregnancy. The following facts from extensive clinical experience in the last few years indicate that it is impossible to foretell with any degree of confidence, what the outcome of a given pregnancy will be. It must always be remembered that only one of every 20 Rh-negative mothers will become immunized by pregnancy with an Rh-positive fetus. Since 5 to 10 per cent of all cases of erythroblastosis fetalis occurs in first pregnancies, the fact that there have been no previous pregnancies is no assurance that erythroblastosis will not occur. Likewise, 10 to 15 per cent of Rh-positive babies born of Rh-negative mothers known to be sensitized and having circulating antibodies, are free of all evidence of erythroblastosis. It is known that there is a tendency for each successive infant of a sensitized mother to be somewhat more severely affected by the disease. However, there is an even more striking tendency for a mother to have infants with erythroblastosis of similar severity. If a sensitized mother's previous infants have been live-born babies with erythroblastosis that has responded well to therapy, the chances are in favor of her having similarly affected infants with future pregnancies. If the mother has had one or more stillborn babies due to blood group incompatibility, the prognosis is less optimistic and will warrant extensive study. However, in no instance is the prognosis hopeless for a resulting healthy infant.

A woman with a very discouraging history of stillbirths or kernicterus in previous infants can find

encouragement in the ever improving results of therapy of live-born infants and in the chance that she will have a live-born infant with some future pregnancy. Although there has been a 20 per cent incidence of stillbirths in sensitized Rh-negative women, the prognosis is improving and can never be considered completely hopeless for a woman who earnestly wants to have a family.¹

From all the foregoing data it is obvious that any sensitized Rh-negative woman may give birth to a normal infant or to one with erythroblastosis fetalis of any degree of severity. It is impossible to foretell the outcome of any given pregnancy in these women. The pregnancy and immediate neonatal course should be planned accordingly.

Delivery of Sensitized Rh-Negative Mothers

In managing the delivery of an Rh-negative woman it is essential to know whether or not she has been immunized to the Rh antigen. If the woman has been sensitized, only in the quite unusual situation involving previous stillborn infants might the early induction of labor be indicated. Experience from many clinics has clearly shown that induction of labor as early as two weeks before term will significantly increase the incidence of brain damage due to kernicterus. If all sensitized Rh-negative women are allowed to go to term, a slight increase in the incidence of stillbirths will occur. However, there will be more than a compensating reduction in the mortality of infants born alive and a very important reduction in the incidence of kernicterus. Cesarean sections are to be avoided whenever possible, for increased infant morbidity and mortality is associated with this procedure.

The condition of the baby may be significantly altered by the procedure used in clamping the cord. In the past there has been considerable enthusiasm for very early clamping of the cord in hope of preventing infusion of excessive amounts of antibody-containing blood into the baby. The amount of hemoglobin kept from the baby by this practice may be considerable, with significant degrees of blood loss, anemia, and even shock, resulting. It is wise not to be too anxious to interrupt the umbilical circulation.⁵ Likewise, a generous portion of the cord should be left attached to the infant to facilitate carrying out exchange transfusion through the umbilical vein.

Care of the Infant

A physician primarily concerned with the care of the newborn infant should attend the delivery of all immunized Rh-negative women and be prepared to promptly institute appropriate diagnostic and therapeutic procedures. The baby should be carefully examined at the time of birth with special attention

directed toward findings of erythroblastosis fetalis. Pallor, edema, hepatosplenomegaly, and rapidly developing icterus may be present to varying degrees in an infant with erythroblastosis fetalis. Many infants with the disease are free of all physical abnormalities at the time of birth. This is no assurance, however, that severe erythroblastosis, even resulting in death or brain damage, will not occur in these babies.

Cord blood specimens should be immediately examined to determine the Rh type of the baby, the status of the antiglobulin test (Coombs'), and the hemoglobin level. It is also important to determine the reticulocyte and normoblast count and the bilirubin level. The laboratory studies should be promptly and carefully done and interpreted in light of well established normal values of cord blood specimens.

An Rh-negative infant born of a mother who is known to be immunized to the Rh antigen will not have erythroblastosis fetalis. Occasionally an infant's blood will give a false negative reaction in Rh typing if the cells are so heavily coated with antibody as to prohibit the typing serum from reaching the Rh antigen of the erythrocyte. Such cells react strongly positive to the Coombs' test and thus each typing of infant's cells should be done in conjunction with the Coombs' test. If the result of Coombs' test is negative and the Rh typing reaction is negative, the infant can be assumed to be Rh-negative and not to have erythroblastosis fetalis due to Rh antibodies.

The normal values for cord hemoglobin levels will vary depending on the standards used in various laboratories. A level in the cord specimen below 15.6 gm. per 100 cc. (a value of 100 per cent for adults) is indicative of anemia in most laboratories. Bilirubin content in the serum above 3.0 mg. per 100 cc. is distinctly elevated. The numbers of reticulocytes and nucleated erythrocyte precursors in the circulation are difficult to evaluate and these factors give less specific information than the other laboratory studies discussed above. If reticulocytes are above 10 per cent of the total number of erythrocytes, one can conclude that abnormally active erythropoiesis is occurring. A similar conclusion may be indicated if there are more than 10 nucleated erythrocytes per 100 leukocytes. The latter examinations are often subject to considerable technical variations.

The laboratory studies mentioned in the foregoing paragraphs should be completed within an hour after the time of birth of the baby of a sensitized Rh-negative woman. If there is complete absence of clinical evidence of disease, as frequently happens, the management of the infant will be determined from the results of laboratory studies. Obviously, no single laboratory study will determine the diag-

nosis of erythroblastosis fetalis. However, thoughtful evaluation of all of the studies mentioned above will permit a decision as to whether or not hemolytic anemia due to immunization—that is, erythroblastosis fetalis—is present or absent in a given infant.

Treatment of Erythroblastosis Fetalis

The most conservative course of management of the baby with erythroblastosis fetalis demands an immediate exchange transfusion in the presence of clinical or laboratory evidence of the disease. The technique of exchange transfusion has been described in detail. In inexperienced hands the procedure is not without hazards; hence it should be done only by trained personnel under optimal circumstances. The blood used should be as freshly drawn as possible—certainly no older than 96 hours. Obviously, the procedure should be carried out in an area where effective aseptic technique can be followed.³

Post-transfusion Care of the Infant

After an initial exchange transfusion the infant should be placed in a warm, moist atmosphere with supportive oxygen. The bilirubin level should be checked at intervals of 8 to 12 hours and if it reaches a level of 15 to 20 mg. per 100 cc. or higher, exchange transfusion should be repeated.

This program of management of Rh-negative mothers and infants with erythroblastosis fetalis should result in complete recovery of over 95 per cent of live-born infants with the disease.² Of equal importance is the fact that the devastating complication of severe brain damage due to kernicterus is practically eliminated. In infants treated only with small transfusions for their anemia, the incidence of kernicterus will approximate 15 per cent. Kernicterus may occur in over 30 per cent of infants with the early induction of labor without exchange transfusion.

Stillbirths and Their Prevention

At the moment the most disturbing unsolved problem for the sensitized Rh-negative woman is that of stillbirths. Twenty to thirty per cent of pregnancies in sensitized Rh-negative women may result in the birth of a stillborn infant. Attempts to alter this situation by the use of cortisone during pregnancy have not been of proven value. Likewise, the administration of certain extracts of Rh-positive erythrocytes to sensitized Rh-negative pregnant women has not affected the course of the disease in the infants. In spite of this discouraging situation the prognosis for any woman who has had one or even several stillborn children due to blood group incompatibility, is never hopeless, especially in light

of the very good results obtained from the optimal treatment of live-born babies with erythroblastosis fetalis.

The most difficult problems are encountered in women strongly sensitized, who have had one or more stillborn infants, have only one or possibly no living children, and whose husbands are homozygous positive for the Rh factor. In such instances induction of labor as early as the 37th or 38th week of gestation with immediate exchange transfusion of any Rh-positive infant who has a positive Coombs' test result, may result in a living infant free of brain damage.¹ The treatment of an infant with severe hemolytic disease and with the many handicaps of prematurity is difficult and may often be unsuccessful. To avoid needlessly becoming involved in such a hazardous situation, each patient should be carefully studied and her problem reviewed by a qualified consultant before early induction of labor is undertaken.

The program outlined in the foregoing paragraph demands the thoughtful cooperation of physicians responsible for laboratory, obstetrical and pediatric problems of pregnant patients. Certain basic laboratory and therapeutic facilities are obviously essential and must be available for adequate management of babies of isoimmunized Rh-negative women. In

light of current knowledge, any compromises with this basic program will be reflected in a greater than necessary incidence of kernicterus, mortality and stillbirths. To obtain essential laboratory studies during pregnancy does not present problems for physicians in even the most remote rural areas, for blood specimens can be easily sent to competent laboratories at considerable distances. However, one must face the fact that an Rh-negative woman who has been found to be immunized, should not be delivered in a hospital where a basic program as described here is not available for the necessary care of her infant.

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REFERENCES

1. Allen, F. H., Jr., Diamond, L. K., Richardson Jones, A.: Erythroblastosis fetalis. IX. The problems of stillbirths, *New Eng. J. of Med.*, 251:453, 1954.
2. Arnold, D. P., Witebsky, E., Selkirk, G. H., and Alford, K. M.: Clinics and serological experiences in treating hemolytic disease of the newborn, *J. of Ped.*, 46:520, 1955.
3. Diamond, L. K., Allen, F. H., Jr., and Thomas, W. O., Jr.: Erythroblastosis. VII. Treatment with exchange transfusion, *New Eng. J. of Med.*, 247:688, 1952.
4. Diamond, L. K., Smith, N. J., Vaughan, V. C., III: Disorders of the Blood, *Textbook of Pediatrics*, Philadelphia, Saunders & Co., Editor, Waldo E. Nelson, 1954.
5. Seventh M & R Pediatric Research Conference, Erythroblastosis Fetalis, M & R Laboratories, 1954.



The Impartial Medical Examiner

A Neurosurgeon's Differences and Agreements with the Industrial Accident Commission

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IN THE Report of Senate Interim Committee to the Senate on Workmen's Compensation Benefits, of 1953, testimony was referred to that seemed to throw doubt on the value and fairness of the impartial medical examiner system. Having acted as an impartial medical examiner on a number of occasions, the author thought it might be of interest to compare the recommendations he had made in the various cases with the final action taken by the Industrial Accident Commission.

One hundred and forty-seven reports were available for review. Officers of the Industrial Accident Commission* provided the folders on these "closed" cases. All that remained was to compare the author's evaluation of each situation with that adopted by the Commission.

Before proceeding with the comparison, several comments may be made that may explain some discrepancies or failures of agreement.

First, the Commission may properly be in possession of information properly not available to the medical examiner. Second, age, earning power, life expectancy in relation to the degree of disability may be taken into account by the Commission. The author did not feel it within the examiner's province to speculate on these factors.

Third, emotional response to the claimant and his condition is, in some instances unavoidable. When one sees an unfortunate wretch, it is almost impossible not to "give him something" anyway, even though his condition is palpably not due to, or aggravated by, injury. Two examples of this will be given later.

Emotional factors enter in another way also: In spite of every effort to be impartial, the personalities and attitudes of an applicant in some extreme cases must sway the examiner or the Commission or both.

In a few of the cases reviewed, the chief question to be answered was only secondarily medical. These

• In 147 industrial compensation cases the evaluation reached by a neurosurgeon acting as an impartial medical examiner was compared with the disposition made by the Industrial Accident Commission. There was complete or general agreement in 71 per cent of the cases, pretty sharp disagreement in about 30 per cent.

In general, the Industrial Accident Commission was more liberal than the neurosurgeon acting as impartial medical examiner.

were cases in which there was no controversy about the medical status or disability. The problem was to assess the responsibility of two or more injuries for the claimant's condition; one study was requested for the sole purpose of getting the examiner's opinion on the adequacy of a compromise and release already agreed upon. For the most part, however, the questions were medical.

Agreement and disability in the 147 cases in which the examiner's recommendation could be compared with the final action of the Industrial Accident Commission could be classified pretty readily as follows:

1. Pretty complete agreement.....	71	48.3%
2. General agreement.....	33	22.6%
(a) Examiner more liberal.....	10	7.0%
(b) Commission more liberal..	23	15.6%
3. Pretty sharp disagreement.....	43	29.2%
(a) Examiner more liberal.....	14	9.5%
(b) Commission more liberal..	29	19.7%

Examples appropriate to the first and third headings may be of interest.

1. Pretty Complete Agreement

The case of a 34-year-old machinist presented a problem regarding spinal injury or disease. There was a mass of conflicting medical opinion, largely due, it turned out, to lack of complete medical information. The carrier, supported by its medical reports, sought to avoid some or all of the responsibility on the basis of preexisting disease.

It was necessary for the examiner, through the Commission, to correspond with physicians and a hospital staff in other states, to review local hospital records, to digest a huge medical file and to review a large number of x-ray films. The examiner's report was apparently considered a fair analysis of the situation. In ruling for the claimant the referee read into the "award," verbatim, the examiner's "opinion."

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*Grateful acknowledgement is made to the Industrial Accident Commission of the State of California, to Dr. J. L. Barritt, Director, Medical Bureau, to Supervising Referee, Mr. Edmund J. Thomas, Jr. (who filled a small room with folders for our perusal) and to Mr. Everett A. Corten, Chief Counsel, Industrial Accident Commission.

A second example of another sort of "pretty complete agreement" may serve to help refute one prejudice against the impartial medical examiner system. When the author told a claims attorney that he planned to make the survey here reported, the attorney said, "Go ahead, but it's a waste of time. You'll find the Commission follows your recommendations when you favor the claimant, but not otherwise." That this is not always so is illustrated by the following case (and there are several other examples).

The claimant was a 49-year-old carpenter who had received what appeared to have been a trivial craniocerebral injury several years before our study. His chief complaints were "dizziness; misery in neck; sick at stomach; weakness right arm and hand; ninety per cent loss of sexual power; can't sleep; nervousness; eyes burn in movie." We thought the claimant a true malingerer and thought any sort of a settlement undesirable. The Industrial Accident Commission's ruling was "Take nothing."

2. General Agreement

Illustrations of the second main category do not seem needed in this paper. These are cases hinging on quantitative factors only—in which the examiner thought some settlement or disability rating was in order, and in which the Commission agreed. They are listed as "general agreement" because there was only slight disparity between the examiner's and the Commission's evaluations of the situation. As noted, however, the Commission was more generous than the examiner twice as often as the examiner was more generous than the Commission.

The number of cases classified in the categories "pretty complete agreement" and "general agreement," was 104, or 71 per cent of the total number reviewed.

3. Pretty Sharp Disagreement

More interesting is the third category, comprising 43 cases or about 30 per cent of the total, in which there was pretty sharp disagreement between the recommendations of the examiner and the disposition by the Commission. In this group, again, the Commission was more liberal than the examiner twice as frequently as the examiner was more liberal than the Commission.

3a. Disagreement, Examiner More Liberal

A 35-year-old laborer received a torsion-lifting injury to his back. On abundant objective evidence the examiner made a diagnosis of herniation of a portion of a lumbar intervertebral disk and considered the patient disabled for all but the lightest work. Assuming that an operation or operations would be necessary, the examiner felt that if compromise and

release was to be effected it should be for several thousand dollars.

Subsequently, compromise and release was effected for \$950 in addition to \$98.57 that already had been paid.

A 60-year-old laborer received a craniocerebral injury of some severity in an eight-foot fall to a concrete platform. The history, examination and general evaluation of the case made the examiner feel that the claimant had considerable permanent disability and that he would be able to do only the lightest work in the future.

The compromise and release in this instance was \$1,250, which seemed somewhat low to the examiner.

3b. Disagreement, Commission More Liberal

The claimant was a 35-year-old nurse, unmarried, whose buttocks hit a wall after she tripped over a gurney. A number of symptoms promptly developed, some of which vaguely suggested herniation of a portion of an intervertebral disk. A physician she consulted confirmed this diagnosis and told her that an operation would relieve or cure her. When seen by the examiner more than a year after the injury, she had not returned to work, and the examiner's opinion was that the situation was entirely functional and that there was no herniation of a disk. The patient and a vigorous attorney succeeded in winning an operation for her. Herniation was not found. After convalescence there was a compromise and release at \$8,500 in addition to \$3,297.15 already paid. The patient announced that she intended to continue to be operated upon throughout the length of her spine, until somebody found herniation of a disk.

A 44-year-old woman, divorced, a journeyman electrician, was seen four years after she had received injury to the low back caused by lifting. Radiating pain in the lower extremities led, eventually, to two laminectomies and fusions. No herniation of a disk or other cause of root compression was found at either operation. At the time of this examiner's survey the situation seemed wholly functional and the patient was judged to be able to work. The compromise and release in this case was for \$13,000. The examiner thought this quite generous.

Examples of instances in which, possibly owing to emotional factors or the desire of the carrier to dispose of the case, small settlements were made that did not seem justified by actual medical findings, may be of interest.

A 52-year-old former tractor driver had a "crick in the back" that had begun while he was making repairs on the underside of a wagon. The examiner thought the diagnosis was unmistakably amyotrophic lateral sclerosis and reported the situation nonindustrial. The patient's condition made him

a pitiable wretch, however, and a compromise and release of \$897.00 in addition to \$993.90 already paid, was effected.

In another case there was an allegation of injury to the thoracic spine caused by lifting. There was an abundance of objective evidence of neurological disease and disability. But, as the examiner pointed out, these findings had been recorded in the Stanford University Hospital clinic records two years before the "injury" occurred. The examiner considered the patient's condition attributable to congenital spastic paraplegia and that the situation was not industrial.

But, again, the patient was a miserable spectacle, and it was no surprise to the examiner that, in a hearing, he received, through compromise and release, \$1,500 in addition to amounts already paid.

THE FUNCTIONAL ELEMENT

Comments on those cases considered "functional" seem pertinent in connection with this review. But first *functional disease* must be roughly defined. The Fifth Edition of Gould's Medical Dictionary gives this meaning: "Functional disease, a derangement of the normal action of an organ without structural alteration." This is not at all the way in which the word is used by most western physicians. This examiner, and most of his colleagues, use the word to describe a situation in which there is no real disturbance of function, but in which complaints originate, are aggravated, or are prolonged, by a state of mind—such as hysteria, neurosis, psychosis or malingering, whether because of a desire for money or simply a desire to avoid work, or for some more obscure reason.

It does not seem proper for a neurosurgeon to attempt to go further than to use the word "functional" in most instances, and we have usually adhered to this. A few cases (among which the case of the nurse in search of a herniated disk belongs) were recognizable, even by the author, as owing to hysteria. A few claimants would be recognized as malingerers by any competent physician. But in the majority it is the examiner's feeling that the sub-diagnosis of the functional state should be a matter for a psychiatrist familiar with industrial cases. This qualification is necessary because young or inexperienced psychiatrists, in the author's opinion, are likely to see a poor, suffering and aggrieved human in every palpable fake.

In the examiner's opinion the situation was chiefly or entirely functional in 39 (26.5 per cent) of the 147 cases. In an additional 12 (8 per cent) the examiner reported that the patients were obvious malingerers. In one instance the patient was thought by the examiner to be psychotic. He was thereafter seen by a psychiatrist and committed to a state hospital.

As this nonindustrial situation probably would have been apparent to a layman, the examiner felt justified in making the diagnosis.

Probably it is equally unwise for a neurosurgeon to try to identify the origins of the functional states. Psychiatric investigation of a patient's resentment, for instance, might show that he had long been resentful of everything; that the apparent cause of resentment and hence a functional state lay within the patient's own constitution or surrounding life. But it may be justifiable for the neurosurgeon to mention what appeared, superficially, to be responsible for the functional state in some instances:

Desire for Gain

This is quite easily recognizable in malingerers. In another functional group the desire for gain may not be apparent to the examiner, attorneys, the referee or to the patient himself. In such cases the claimant does not recover immediately, once a settlement is reached. In reviewing the records, however, it was apparent, through termination proceedings, to determine that recovery, over a period of several months, did follow, in long-standing situations, when satisfactory financial arrangements were made.

Patient's attorneys are most likely to be misled in this regard, and are likely—sincerely and honestly, it seems—to make statements to the effect that "anyone can see that the woman is disabled; all you have to do is look at her." Unfortunately, it is not that simple. Characteristically these claimants start out by saying, "It's not money I want; I want to get well! No amount of money would pay for what I'm going through."

Self-Justification

Some patients persevere in their functional position not because of a desire for gain but in the hope that it finally will be proved to the world that they were badly injured and that they did and do have great suffering.

Resentment

Resentment over some aspect of a patient's course after injury appears, to the author, to be the commonest source of a functional state. Resentment, in turn, may be due to a number of factors. Those noted most frequently in the cases reviewed were as follows:

Treatment by employer. Many employers do not recognize that the medical evaluation of a real or alleged injury is not within their province. A case in point is that of a 25-year-old negro laborer whose story (which could not be verified because of the lapse of time, although it has not been denied) was as follows: He stopped work the day he injured his back and reported the injury. When he refused to go

back to work, he was promptly ejected from the plant by a guard conspicuously armed. He spent the remainder of the night unsuccessfully seeking admission to various east bay and San Francisco hospitals.

The functional state in this individual, apparently engendered by resentment in connection with this episode, has cost the carrier several thousand dollars and will cost additional thousands in the future, in this examiner's opinion.

Management by carrier. A functional state resulting from resentment over management of a case by an insurance company is illustrated by the following. This story was verified, or at least brought out and not refuted, in a subsequent hearing before the Commission. A 32-year-old female cook received minor laceration of a thumb, and pain, tenderness and swelling of the thumb followed. In the succeeding four months the thumb was twice operated upon for purposes of drainage. Still having pain, the claimant asked the carrier for a change of physicians. The

claims representative told her to return to the original physician for a period of two weeks, and "At the end of that time we'll know whether to give you a million dollars, kick your butt or continue treatment."

These words burned themselves into the patient's mind and into the case history and, in this examiner's opinion, needlessly complicated recovery and added greatly to the expense of disposition.

One functional state is believed to be based on unjustified resentment. Some patients, having received excellent medical care at the hands of the carrier, bemoan the fact that nothing is being done for them, when, as far as could be determined, everything within the bounds of prudent medical management had been done. Other patients in this group seem unable to understand the limits of the responsibilities of the carrier and the Industrial Accident Commission.

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Discussion by **EDWARD O. ALLEN, San Anselmo**

Dr. Fender has asked the writer, who before his retirement in 1947 had many years of service with the Industrial Accident Commission of California as referee, attorney and Commissioner, to present a background to the doctor's personal conclusions relative to the functions of a neurosurgeon as impartial medical examiner appointed in specific cases by order of the Commission. Dr. Fender seems sometimes to feel at a loss as to how the Commission arrived at conclusions differing from his own, in view of the record in the case.

There has been often voiced, particularly by representatives of injured workmen, emphatic dissatisfaction with the system of appointing, through the machinery of the Commission, specialists in the branch of medicine appropriate to the case under trial, who should examine both the injured claimant and the relevant record, and render an opinion on the nature and extent of disability resulting from the injury as well as a prognosis and recommendations regarding further treatment and medical handling.

The conclusions expressed by its appointee naturally bear great weight with the Commission, but the critics insist that the merits of the injured person's claim as to his disability should be passed on by the official actually hearing the evidence, including testimony and reports of the physicians of each party to the case, and the judgment should be rendered by that official uninfluenced by the opinions and advice of strangers to the actual testimony and proceedings, no matter how eminent. Another objection expressed is on the ground that the examiner is influenced, unconsciously or not, by knowing that his fee usu-

ally comes indirectly from the employer's side of the case, although formally paid by the Commission. A brief historical background may be appropriate, as to how the Commission arrives at its conclusions.

It should be remembered that it was thought and planned in the beginning of the Industrial Accident Commission's history, 40-odd years ago, that the proceedings of that body should be "administrative" in character, and that rough but sympathetic justice should be rendered injured employees "around a table," with dispatch and without the complications and technicalities inherent in court proceedings. Nevertheless actual experience eventually showed that—although not called so—the Commission was actually a "court" and as such is subject to limitation and procedural requirements arising from the state and federal constitutions and laws.

Amongst such is "due process of law," from which follows the right of each disputing party to be heard and to be presented with the other's evidence, along with the right of cross-examination; and there follow also the rules of evidence and the rules governing conclusions reached by the judge, and the like. Under this head there arises the controversy as to right of the Commission to appoint, within its own judgment, a presumptively impartial expert to advise the Commission where the parties' testimony is contradictory or, in the tribunal's opinion, is inadequate for a well-founded decision.

Since the Commission, as a court, is in effect on a level with the Superior Court, or general civil trial tribunal, it would seem equally entitled to appoint medical examiners in the same circum-

stances as the Superior Court is allowed to do, under a statute enacted in recent years.

It is also contended that the findings and opinion of the attending physicians should be paramount in the body of the medical evidence. The opposite contention, that the case should be decided by the hearing officer receiving only the testimony offered by the parties and making his own appraisal as to weight and degree of honesty of the evidence, is not in accord with the prevailing philosophy calling upon the Commission to make the necessary enquiries to develop the true facts and the causes of claimed disability.

Aside from its judicial duties of rendering decisions as between the injured employee or dependents and the employer or his insurance carrier, the Commission has functions which are genuinely "administrative" in character. Since first operating, the Commission has set up a Medical Department, designed not only to examine injured employees who appear informally seeking advice or desiring a rating for permanent industrial injuries, or informally to evaluate medical bills and the like, but also to act in an advisory capacity to the Commission itself.

In actual practice in judicial cases the trial officers as well as the Commissioners often resort to the staff of the Medical Department to learn the meaning and significance of medical terms and the nature and industrial causes of disabilities which are the subject of controversy in a formal case, as well as the merits of written medical reports received in evidence. The judgment of the Medical Department that the case calls for an impartial medical examination often eventuates in the appointment of such an impartial examiner, and almost invariably the appointment of the examiner is made on the department's recommendation as to the particular expert to be appointed.

The embarrassment as to "due process" lies in the fact that the personal contacts for the above purposes between the judicial officer and the department physician are not made a part of the record, and the parties to the case in hand are not necessarily advised of the extent to which the ruling of the judicial officer is influenced or based on the informal advice given him by the physician—all in good faith, of course.

Moreover, since the Commission has no allowance for paying the fee and laboratory expenses of the examiner, none can be appointed unless one of the parties agrees to pay him, and the usual upshot is the agreement of the employer or insurance carrier to bear the costs.

Although the Commission for a time after its formation 40-odd years ago endeavored to make decisions in cases where a Commissioner presided

over the hearing, it was soon found that claims were too numerous to permit a Commissioner to preside personally, and a system was adopted of employing referees, qualified as lawyers, to hold the hearings and take the testimony, the transcript whereof would be studied and reviewed at headquarters. In due course the cases again became too numerous, so the referees were given the authority at first to recommend a decision to be approved or the opposite and later actually to sign decisions, most of which would receive official approval *pro forma*.

The testimony is always taken down by a shorthand reporter, but not transcribed unless a party requests and pays for the transcript, although the Commission sometimes orders a transcript for its own information and review. But the referee always accompanies his decision with a report of the substance of the testimony as noted by him, and a memorandum of the reasons why he arrived at the decision. It should be particularly noted that medical testimony for the most part is not oral at a hearing, as in the civil trial courts, but consists of unsworn written reports currently prepared by the attending and consulting physicians of the defendant employer or insurance carrier and of such physicians or consultants as may be engaged on behalf of the claimant.

Perhaps 90 per cent of the tens of thousands of industrial accidents never reach the Commission as formal claims, although the employer and the insurance carrier retain the medical record in each case. The remaining approximate 10 per cent arise mostly from dissatisfaction of the injured employee at the outcome of the treatment furnished him, and he may decide to resort to his own physician or trust to the judgment of the Commission. Oral testimony of physicians at a formal hearing is not the rule, but sometimes one or both of the parties deem such oral appearance desirable in order to emphasize his physician's conclusions or to render clear what is usually a complex or abstruse medical contention as to the nature and cause of the claimed disability.

The principle of "due process of law" requires that an impartial medical examiner may be cross-examined orally on the witness stand, although the party producing him must pay the appropriate witness fee as in any other case of medical testimony. The litigated ten per cent of injuries above referred to of course includes all the other causes of action outside the medical and disability field, such as jurisdiction, compensability in law, dependency, and the like.

Some critics of the present examiner system contend that the fair and just method of reaching conclusions as to the nature, extent and cause of disability should be an official Medical Department

staffed with sufficient physicians of the various specialties, who are prepared to examine all claimants, whether injured employees appearing informally or as formal parties to a case, like the medical departments operated by the commissions of some other states. In practice this, in the long run, would tend to repose the decision as to disability and cause in the medical group rather than in the referee or commission, and the question would always remain as to the adequacy of the examination and medical examiner's survey of the record, and the capability of the doctors, whose monetary compensation would in the main be similar to that of a general practitioner. Budgetary considerations also enter in.

Realistically, it seems to be conceded by those in the work-a-day world of workmen's compensation that the present system of passing judgment on a workman's claim regarding his disability attributable to industrial injury is as effective and as just as human infirmity permits. It is the observation of the writer over three decades of close connection with industrial injury matters in California that the work of the impartial medical examiners has contributed in an important degree to this result. They have almost without exception been truly impartial, painstaking and conscientious, animated by a spirit of civic service, and of course skilled in their specialties and in their judgment in probing the obscurities of medical phenomena.

On the other hand the commissioners and referees were chosen for qualities quite other than the knowledge and understanding of medical problems and medical terminology and ways of thought. The referees through long contact with many contested cases involving recurrent types of disabilities have absorbed considerable medical knowledge, but not enough to make decisions (as some insist they should do) without the best of advice. How, within the pressures of litigation and administration of complicated variety and magnitude, can the Commission and referees do otherwise than they have done, with regard to disability problems, without a little stretching of "due process"?

The specialty which Dr. Fender follows, neurosurgery, is probably called upon for appointments as examiner more frequently than other specialties, for the reason that back injuries occur often and present difficult and obscure forms for analysis. When the genus homo evolved into the biped, nature did not quite adjust the quadrupedal bones of his spine and pelvis. Long ago, when the railroads were king, their claims departments always had a perplexing time with the then entitled "railway spine," and the difficulty still persists. With the best of good faith, experts differ amongst themselves as to the extent of bodily damage to the spine inflicted by injury, when the "personal equation" of the patient is

taken into account, and the condition of the interior structures of the body can not be fully ascertained by the most ingenious techniques of modern medical science.

Where the physician reporting for or put on the witness stand by the claimant expresses findings and opinions contradicted or much modified by those of the defendant—and usually the latter have administered the treatment from the beginning of the case—it is certainly mandatory to place the problem in the hands of a disinterested expert, whose sound judgment, backed by extended experience, as well as his examination of the patient and a study of the entire record and testimony, should prevail unless convincing considerations otherwise are shown.

Dr. Fender's article discusses what he calls the "disagreement" between his own conclusions and the Commission's decisions which awarded or denied compensation where the examiner's recommendation if followed would have resulted in the opposite award. Except in the earlier years it has been the Commission's rigorous policy not to put into the record anything in writing expressing their reasons for reaching a decision. The referees on the contrary are expected to discuss in the record the considerations which prompted them to recommend a decision which they deem just and in accord with the evidence. Certain types of cases (very often including those needing an examiner) automatically go to the Commission for decision, and in a material percentage the referee's recommendation is reversed.

In the absence of a memorandum of the Commission it is guesswork to deduce the animating reasons, and "disagreement" with the examiner's conclusions may not necessarily enter in. The referee's memoranda in the case may throw light on the reasons, but it should be remembered that the staff of referees is quite numerous, and they naturally differ in their slants of thought and personal equations, and where substantially identical circumstances of fact and testimony, but in separate claims, are presented to two referees the respective decisions may be opposite in essentials.

It was observed by the writer as time went on in his service that there occurred little or no personal oral discussion of the cases between the Commission and the respective referees; and oral argument by the attorneys, although it is the rule in the civil courts, was banned before the Commission. The Commission learns of the case before it only from written memoranda, petitions or briefs, and from occasional transcripts of testimony including the written medical reports.

The explanation for the above situation is largely the vast number of claims flooding a tribunal of quite limited membership, and still governed by the tradition that it is an "administrative tribunal" and

not a court determining property rights under a statute granting to employees monetary benefits taken from the employers.

Dr. Fender discussed at considerable length the important matter of *settlements*, which are permitted by statute, whereby upon approval of the Commission the employee agrees to receive and the defendant to pay a fixed sum of money with a complete release of further liability by reason of the injury in question. Some state commissions have the practice of using this method of concluding a controverted claim to a much greater extent than in California, although here it is quite frequently resorted to where genuine doubt arises as to the extent of disability and the prognosis, or as to compensability in law, or where the effect of settlement and its payment is expected to have a therapeutic effect on the mind of the claimant.

Back injuries lend themselves readily to a neurotic, or "functional," disability and the services of an examiner are of great value in the determination of the question whether or not the disability is of this character, and of how to handle it. Since early in its history the Commission has approved settlements of this sort, on eminent medical authority that a neurosis, or other psychological irregularity, can be relieved upon a payment which satisfies the mind of the claimant.

Since it is sometimes the case that this expectation is not realized, that the disability continues, and a reopening of the order approving the settlement is open to legal and other difficulties, the Commission once devised a form of what it called "a gentlemen's agreement" whereby the defendant in a separate document, kept secret from the neurotic and his

attorney, agrees to reopen the case voluntarily if the settlement has not effectuated the expected cure. This procedure has fallen into disuse, since one school of attorneys representing claimants apparently distrusted the gentlemanliness of the other side, or at any rate secrecy was hard to maintain.

It would be of great value to the work of the Commission and to the medical profession in general, as well as to civil practice for damage claims, if a systematic follow-up of approved compromised claims in compensation could be established and there could be compiled statistical information on the sequels of all cases of traumatic neurosis, thus affording information as to the success and failure of this "settlement" mode of therapy. The Commission at one time was about to inaugurate such a system and employ investigators, but an economy urge in one of the incoming state governors put a stop to it in the budget. (The writer, in several cases of alleged traumatic neurosis, where as referee he urged settlement which was approved, happened to learn by accident long after the case was concluded that there was full and permanent recovery to normal after the payment of the compromise.)

Dr. Fender is to be thoroughly commended for compiling his personal information on the cases he has handled as examiner, and his conclusions should be of great value to those involved in similar matters. It is hoped and urged that those physicians, in all branches of medicine, who are and have been called upon for service as examiner would join Dr. Fender in similar reports, thus creating a compilation of factual information of inestimable value in improving the methods of ascertaining the correct compensation and care for disabilities resulting from industrial accidents.



Lipoproteins and Diet in Coronary Heart Disease

A Five-Year Study

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SOME SIX YEARS AGO we began a series of investigations concerning the relationship of serum lipoproteins with the clinical aspects of coronary heart disease.^{2,3,4} The earliest studies indicated that survivors of myocardial infarction showed distinctly and significantly higher average levels of certain serum lipoproteins than did a group of clinically well persons matched by age and sex. These early observations have been amplified and extended in a series of studies over the past several years which indicate clearly that an association exists between certain serum lipoproteins and clinical coronary heart disease.

During this period we have had the opportunity to observe 470 patients with manifest clinical coronary heart disease and to note the relationship of lipoprotein content of the serum with the clinical features of the disease, including diagnostic, prognostic and therapeutic features. The purpose of this presentation is to report some aspects of the current status of this follow-up experience with clinical coronary heart disease.

Method

The serum lipoproteins are determined by the use of the preparative and analytical ultracentrifuge. Lipoproteins are named in terms of their rate of migration in an intense centrifugal field. The unit of migration rate is the Standard Svedberg of Flotation or Standard S_f unit. Two major classes of ultracentrifugally determined lipoproteins have been of interest with respect to coronary heart disease, the Standard S_f0-12 lipoproteins and Standard $S_f12-400$ lipoproteins. From our earlier studies of coronary disease it became evident that both these classes of lipoproteins are significantly higher in persons who have the disease than in the apparently healthy population. Thus it becomes desirable to integrate the two findings into a single measurement. One way to do this would be simply to add the Standard S_f0-12

• In a follow-up study for a five-year period of 351 patients with myocardial infarction and 119 patients with angina pectoris, the following observations were made:

(a) The previously reported lipoprotein atherogenic index elevation in coronary heart disease was confirmed.

(b) The prognosis in angina pectoris is strikingly and significantly worse when the lipoprotein atherogenic index is high.

(c) Patients who died in the follow-up period showed significantly higher atherogenic index values than those who survived.

(d) The lipoprotein atherogenic index measure is much superior to the serum cholesterol measurement as an indicator of the lipid disorder in coronary disease.

(e) The low fat, low cholesterol diet is effective in maintaining chronically lowered lipoprotein atherogenic index values.

(f) In patients who said they did not adhere to a low fat, low cholesterol diet, the recurrence and death rate was four times as high as in patients who stated they adhered to the diet.

level to the Standard $S_f12-400$ level. However, statistical analysis of the data indicates that, from present estimates, every milligram of $S_f12-400$ lipoprotein is approximately 1.75 times as important for coronary disease as every milligram of Standard S_f0-12 lipoprotein. Therefore, before combining the two lipoprotein values, the Standard $S_f12-400$ level is multiplied by 1.75 to take into account its greater value per milligram. The combined measure of these lipoprotein molecules is designated as the Atherogenic Index value, or A.I. value.

$$\text{Atherogenic Index} = \frac{\text{Standard } (S_f0-12) + 1.75 \text{ Standard } (S_f12-400)}{10}$$

The divisor 10 is used arbitrarily to achieve a convenient scale of Atherogenic Index values. In lipoprotein terms a person is described in terms of his Standard S_f0-12 level, his $S_f12-400$ level, and his overall atherogenic index value which combines both lipoprotein findings. It is to be emphasized that elevation of one of the lipoprotein classes is by no means necessarily accompanied by elevation of the other. Hence the best description of the metabolic situation requires knowledge of both S_f0-12 and $S_f12-400$ levels.

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TABLE 1.—Comparison of Lipoprotein and Atherogenic Index Values in 351 Cases of Myocardial Infarction and In an Age and Sex Matched Group of Clinically Well Individuals

	Standard S _T 0-12 (mg. per 100 ml.)	Standard S _T 12-400 (mg. per 100 ml.)	Atherogenic Index
351 cases of coronary disease	416.4	280.5	90.7
Matched control group*.....	378.4	238.6	79.6
Difference	38.0	41.9	11.1
Significance test†	p<0.001	p<0.001	p<0.001

*The matched control group represents clinically healthy persons matched by age and by sex with the infarct group. Such clinically healthy persons were Civil Service employees, industrial employees, and from the population sample taken in the U. S. Public Health Service Study at Framingham, Massachusetts. The lipoprotein values for the controls are based upon determinations in 1,972 males between the ages of 35 and 69 years and in 912 females between the ages of 40 and 69 years. Detailed descriptions of these population samples are in the publication of Glazier.¹

† p = probability that same effect would occur by chance alone.

Results of This Follow-up Study

A. Myocardial Infarction Versus Clinically Well Individuals.

The present studies are based upon our experiences with 351 patients having survived a documented myocardial infarction plus 119 patients with the clinical diagnosis of angina pectoris. This is a "blind" study in that the clinicians and the patients at no time have available to them the lipoprotein and atherogenic index findings. The lipoprotein and atherogenic index values for the 351 myocardial infarction cases are presented in Table 1.

It is quite clear from the data of Table 1 that our series of 351 patients shows significant Standard S_T0-12, Standard S_T12-400, and atherogenic index elevations compared with a matched group of clinically well persons. This provides an independent corroboration of earlier published data showing elevation of these values in coronary artery disease.

B. The Atherogenic Index in the Prognosis of Coronary Disease.

(1) In Angina Pectoris

A group of 119 patients with angina pectoris but without evidence of previous myocardial infarction were studied over a five-year period. Of this series, 31 patients have gone on to have proven myocardial infarction, and, of these, 14 patients have died. The lipoprotein and atherogenic index data on these 31 patients and in the remaining 88 uncomplicated cases of angina pectoris are presented in Table 2.

There is a striking and highly significant ($p=0.004$) elevation in atherogenic index value in those cases of angina pectoris that go on to myocardial infarction as compared with those in which this complication does not develop, thus demonstrating the prognostic value of lipoprotein determination in angina pectoris.

TABLE 2.—Comparison of Serum Lipoprotein and Atherogenic Index Values in Angina Patients Developing Myocardial Infarction and in Angina Patients Remaining Uncomplicated

	Number of Cases	Standard S _T 0-12 (mg. per 100 ml.)	Standard S _T 12-400 (mg. per 100 ml.)	Atherogenic Index
Angina becoming infarction	31	422.4	354.8	104.3
Angina remaining uncomplicated	88	410.5	259.4	86.4
Difference		11.9	95.4	17.9

TABLE 3.—Comparison of Atherogenic Index Values in 52 Patients who Died and 299 Patients who Survived

	Number of Cases	Mean Atherogenic Index
Patients dying during follow-up study	52	98.2
Patients surviving during follow-up study	299	89.4
Difference		8.8
Significance test	$p=0.05$	

(2) Myocardial Infarction

This group is represented by 351 patients with myocardial infarction who were observed over a period of five years. Fifty-two of these patients died of cardiovascular complications during this period. Comparison of the initial atherogenic index values in the 299 survivors and the 52 patients who died is given in Table 3.

These data indicate that patients with myocardial infarction who subsequently died of further vascular complications were characterized by higher atherogenic index values than those who survived.

The follow-up findings both in angina pectoris and in myocardial infarction are consistent in demonstrating that the higher the atherogenic index values the poorer the prognosis for patients with coronary disease.

C. Comparison of the Serum Lipoprotein-Atherogenic Index Measurement with the Serum Cholesterol Level as an Indicator of the Lipid Disorder in Coronary Disease.

Of special interest to clinicians is the relationship of the lipoprotein-atherogenic index findings to the more familiar serum cholesterol measurement. As was pointed out previously, the lipoprotein measurement is much more accurate as an indicator of the lipid disorder in coronary disease than is the serum cholesterol measurement.⁴ The serum cholesterol measurement is misleading especially when it is relatively low, for here many persons may show very high atherogenic index values and high lipoprotein levels. Presented in Table 4 are several illustrative examples of discrepancies between atherogenic index values and serum cholesterol levels in patients with coronary artery disease.

TABLE 4.—Cases of Coronary Artery Disease where a Low Serum Cholesterol Level is Accompanied by a Very High Atherogenic Index Value

Case	Serum Cholesterol Level (mg. per 100 cc.)	Atherogenic Index
1.	128	141
2.	229	94
3.	187	128
4.	231	117
5.	192	99
Average for clinically well 55-year-old male..	250	79

TABLE 5.—Chronically Maintained Atherogenic Index Values in Dieters and Nondieters (4-year Study Period)

Group	Number	Atherogenic Index
Nondieters	74	95.3
Dieters	143	84.2*
Difference		11.1
Significance test of difference....p=0.01		
* After correction by 1.9 units.		

The relationship between the lipoprotein-atherogenic index measure and the serum cholesterol measure may be more fully illustrated by consideration of the actual distribution of levels for all patients originally studied for whom both measurements are available. Since consecutive cases are utilized here, there can be no bias owing to deletion of cases with any particular type of distribution. Seventy cases were available for such an analysis. If the mean values of the serum cholesterol and atherogenic index in the matched control population are taken as cutting points, it is possible to consider how many of the infarct cases are high on both measurements (serum cholesterol and atherogenic index), how many are high on one measure but not the other, and how many are low on both measures. The distribution of cases is shown in the following:

	Cholesterol Below Mean for Matched Controls	Cholesterol Above Mean for Matched Controls
Atherogenic index above mean for matched controls....	21	32
Atherogenic index below mean for matched controls....	13	4

Twenty-one cases of myocardial infarction were high on the atherogenic index measurement but low on cholesterol measurement, whereas only four cases were high on the cholesterol measurement but low on the atherogenic index (high and low referring to level as compared with the mean for matched controls). Statistical analysis indicates a p value <0.01 that the observed distribution could have occurred by chance sampling alone. Overall, 53 of the 70 cases (75.7 per cent) were higher than the mean for matched controls on the atherogenic index measurement, whereas 36 of 70 (51.4 per cent) were higher than the mean for matched controls on the cholesterol measurement.

Therapeutic Approaches to Coronary Heart Disease

In an earlier report^{3,4} it was noted that patients placed on a low fat, low cholesterol diet experience an average lowering in lipoprotein and atherogenic index values. This is true independent of any alterations in body weight. The present report deals with a five-year experience in the practical application of low fat, low cholesterol diets with respect (a) to lowering of lipoprotein levels, and (b) to the efficacy of such a dietary regimen in prevention of recurrence of myocardial infarction in patients with known coronary disease.

D. (1) Effect of a Low Fat, Low Cholesterol Diet Upon Serum Lipoprotein Levels in Ambulatory Patients with Coronary Disease.

Over a five-year period a study was made of 217* patients with respect to the effect of a low fat, low cholesterol diet upon serum lipoproteins. Classification of the patients with respect to dietary habits was based solely upon the patient's written response to a questionnaire. Since the lipoprotein determinations were not known either to the patient or to the clinician, there is no possibility of bias of the dietary history through a foreknowledge of lipoprotein response. In this way two major groups were delineated:

- 1. One hundred and forty-three patients (mean age 54 years) who stated they had followed the low fat, low cholesterol diet well or moderately well during the follow-up period (average 4 years).
- 2. Seventy-four patients (mean age 56 years) who stated they had not followed the low fat, low cholesterol diet during the follow-up period (average \approx 4 years).

A test was made of the initial lipoprotein levels and atherogenic index values in these two groups, before any dietary regimen had been instituted. No significant difference in initial atherogenic index values could be demonstrated between the dieters and nondieters, the values being 92.0 and 93.9, respectively. The average atherogenic index values beyond the first sample maintained by the dieters and nondieters over the four-year follow-up period, corrected for the 1.9 unit difference at the start of the study, are given in Table 5.

These data show that the patients following the low fat, low cholesterol diet maintain lower lipoprotein levels and atherogenic index values than patients not following the diet. The diet advised included a limit of 50 gm. of total fat and 200 mg. of cholesterol daily.

*The 217 patients were from the original series of 351 whose cases were described. Persons who had already been on a low fat diet or a weight reduction regimen before the first blood study were excluded. Lipoprotein levels were not even known when such exclusion was made. The other cases excluded represented cases available to us only for an initial study, without follow-up. Again no foreknowledge of lipoprotein level could have influenced the exclusion of such cases from subsequent follow-up.

TABLE 6.—Follow-up Findings in Relation to Diet in 280 Cases of Myocardial Infarction (Average Follow-up Period 4 years)

Group	No. of Cases	Average Follow-up Period	Number of Recurrences of Myocardial Infarction
Nondieters	125	4.2 years	51 (of whom 13 died)
Dieters	155	3.8 years	15 (of whom 4 died)

D. (2) *Effect of a Low Fat, Low Cholesterol Diet Upon Recurrence of Myocardial Infarction.*

This study was made on a series of 280* patients who had had a myocardial infarction. No patients were admitted to this series unless they had been followed by us for one year without recurrence of myocardial infarction. Patients with known malignant disease or overt congestive heart failure at the outset were excluded from this study. Dietary classification of all living patients was made solely upon the questionnaire filled out by the patient. Classification of cases in which the patient died was made by questioning the nearest relative. The total series consisted of 155 dieters and 125 nondieters. The follow-up findings are presented in Table 6.

The myocardial infarction recurrence rate was approximately four times as high in the nondieters as in the dieters (significance test shows $p=0.000001$). Furthermore the myocardial infarction death rate is four times as high in the non-

*These 280 patients represent those out of the original 351 cases studied who qualified by (a) not having any recurrent infarction within one year of initiation of the study, and (b) by not having either malignant disease or overt congestive failure known at the outset. The same criteria were of course applied both to the diet and nondiet group.

dieters as in the dieters ($p=0.005$). These data suggest that for those patients who claimed adherence to the diet, the rate of progression of clinical coronary disease was reduced. There is no way of ruling out the possibility that other factors in the patient's hygiene may have operated, in part at least, to bring about the observed result. Inasmuch as elevated lipoproteins and atherogenic index values predict a high rate of progression of coronary heart disease and since the present study demonstrated that dietary measures result in chronically lowered atherogenic index values, it would appear probable that at least part of the observed beneficial effect of diet in reduction of coronary recurrence rate and coronary death rate operates by way of lipoproteins.

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REFERENCES

1. Glazier, F. W., Tamplin, A. R., Strisower, B., deLalla, O. F., Gofman, J. W., Dawber, T. R., and Phillips, E.: Human serum lipoprotein concentrations, *J. Gerontol.*, 9:395 1954.
2. Gofman, J. W., Lindgren, F. T., Elliot, H. A., Mantz, W., Hewitt, J., Strisower, B., Herring, V., and Lyon, T. P.: The role of lipids and lipoproteins in atherosclerosis, *Science*, 2877:166-177 and 186, Feb. 17, 1950.
3. Gofman, J. W., Jones, H. B., Lindgren, Frank T., Lyon, T. P., Elliott, H. A., and Strisower, B.: Blood lipids and human atherosclerosis, *Circulation* 2:161-178, Aug. 1950.
4. Lyon, T. P., Jones, H. B., Graham, D. M., Gofman, J. W., Lindgren, F. T., and Yankley, A.: Further studies on the relationship of S_r10-20 lipoprotein molecules to atherosclerosis, *A.M.A. Arch. Int. Med.*, 89:421-7 March 1952.



Sulfisomidine in the Treatment of Pertussis

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ALTHOUGH wide-spectrum antibiotics have been widely used in the treatment of pertussis, few reports have appeared in the literature on the use of sulfonamides for this purpose. A laboratory study by Bradford, Brooks and Katsampes¹ showed that sulfonamides may have a specific action against experimental pertussis. They administered sulfadiazine and immune rabbit serum separately to mice infected with murine pertussis and found that each protected the animals when given 24 hours after infection.

Brainerd² reported upon a clinical study in which a sulfonamide was used for whooping cough. He administered sulfadiazine and hyperimmune gamma globulin to a group of 26 infants who had pertussis complicated by pneumonia, many of whom appeared almost moribund when first seen. In another group, 26 infants with uncomplicated pertussis, only nine of whom were febrile, were treated with hyperimmune gamma globulin alone. It was observed that the latter treatment "appeared to shorten the course, lessen the severity and reduce the rate of complications"; but the combination of sulfadiazine with hyperimmune gamma globulin had added merit in that it "appeared to affect favorably the mortality rate of pertussis complicated by pneumonia."

In view of the limited number of reported studies in this field, the authors observed a group of 21 patients with pertussis who were treated with sulfisomidine (Elkosin®) in the Communicable Disease Unit of the Los Angeles County Hospital. Sulfisomidine replaced chloramphenicol as the drug used in the treatment of whooping cough. However, hyperimmune pertussis serum was continued in the same manner as with the previous regimen.

The patients in this study varied in ages, the extremes being seven weeks and five years. Fourteen of the patients were females and seven were males. Seven of the cases were complicated by bronchopneumonia. The average time in the hospital was ten days; the shortest stay was five days and the longest 25 days. There were no deaths in this series.

The dose of sulfisomidine used was 0.26 gm. per kilogram of body weight per 24 hours. It was given

• Sulfisomidine and pertussis serum were used in the treatment of 21 patients with pertussis. Twenty of the patients were under six months of age and seven had bronchopneumonia.

Therapeutic concentrations of the drug in the blood were obtained in 14 cases when it was given in dosage of 0.26 gm. per kilogram of body weight per 24 hours.

The average stay in hospital was ten days. None of the patients died. Hematuria developed in one case but crystalluria was not concomitant and it abated promptly when fluid intake was increased.

orally. No alkalinizing solutions or other drugs were given. Administration of the drug was started as soon as examinations of the blood and urine at the time of admittance were completed. The content of sulfisomidine in the blood and urine was determined for the first time 24 to 36 hours after the initial dose of the drug. Subsequent determinations were done at 24 to 72-hour intervals during the period of administration.

Therapeutic concentrations in the blood—more than 10.0 mg. per 100 cc.—were achieved in 16 of the cases in 36 hours after the start of treatment. These levels were easily maintained on a standard maintenance dose. Sulfisomidine was rapidly excreted in the urine. The simultaneous determinations of content in the blood and the urine showed a highly variable ratio without value in attempted correlation. Hemolytic anemia or agranulocytosis did not develop in any of these cases.

As to blood concentrations of the drug, the lowest was 5.0 mg. per 100 cc. (two cases) and the highest 53.1 mg. per 100 cc. (one case). In five patients the concentration was between 5.0 and 10.0 mg. per 100 cc., in seven between 10.0 and 20.0 mg., in three between 20.0 and 30.0 mg., and in six it was greater than 30.0 mg. per 100 cc.

Concentrations in the urine, in milligrams per 100 cc., were as follows: 2.8 to 10.0, three patients; 10.0 to 20.0, two patients; 20.0 to 30.0, one patient; greater than 30.0, twelve patients. The highest concentration in the urine was 113.0 mg. per 100 cc.

Only one patient in the series had hematuria. This developed on the seventh day of therapy when the blood level was 12.9 mg. of sulfisomidine per 100 cc. and the urine level was 40 mg. per 100 cc. The urine pH was 5. At the time, the reaction for

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Elkosin® (sulfisomidine) was supplied by Ciba Pharmaceutical Products, Inc., Summit, New Jersey.

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albumin was 1 plus, but there was no crystalluria in spite of the acid urine. Hematuria abated promptly when fluid intake was increased. Repeated urinalysis on all the patients revealed acid urine and without exception the pH never was greater than 5. In spite of this, no sulfonamide crystals or red blood cells were ever found in the urine.

The highest blood level of sulfisomidine in any case in the series (53.1 mg. per 100 cc.) was concomitant with a level of 59.3 mg. per 100 cc. of urine. The patient was a girl three and a half months of age who was in an excellent state of hydration and nutrition at the start of therapy. This patient had been ill for seven days prior to admission to the hospital. Cyanosis associated with paroxysmal coughing was noted for the first time on the day of admission. The infant received 250 mg. of sulfisomidine by mouth at the time of admission and every six hours thereafter. In addition 5 cc. of pertussis serum was given intramuscularly, along with other supportive measures. Approximately 36 hours after the first dose of sulfisomidine the blood level was 23.5 mg. per 100 cc., seventy-two hours later the blood content was 53.1 mg. and the urine content was 59.3 mg. per 100 cc.

It is of interest to note that for the year between July 1, 1952, and June 30, 1953, a total of 244 patients were treated for pertussis in the Communicable Disease Unit of the Los Angeles County Hospital. Excluding the 21 patients reported upon here, 25 (11.2 per cent) had bronchopneumonia and four patients (1.7 per cent) died. Only 42 per cent of the 233 patients were less than six months of age, and 22.4 per cent were under three months. Of the 21 patients in the present study, 20 (96 per cent) were less than six months of age and seven (33.8 per cent) were under three months. In one-third of

the patients under six months of age the disease was complicated with bronchopneumonia. There were no deaths in the present study group.

A comparison cannot properly be made between the larger group (223 cases) treated with pertussis serum and chloramphenicol, and the small group of 21 patients treated with hyperimmune pertussis serum and sulfisomidine. However, if it be conceded that, regardless of therapy, the death rate is highest in patients from one month to six months of age, then this study—96 per cent of the patients in this very young age group and no deaths in the small series, as compared with the 33 per cent in that age group in the larger series, with four deaths—would suggest that sulfisomidine is very effective in the treatment of pertussis.

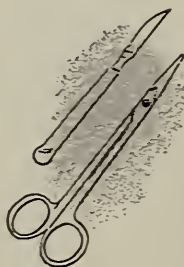
CONCLUSIONS

Sulfisomidine is a relatively safe and effective chemotherapeutic agent in the treatment of pertussis. High blood concentrations of the drug are readily obtained when it is given orally. It is excreted rapidly in the urine. Alkalinization appears unimportant inasmuch as in this study acidity of the urine did not significantly precipitate untoward or toxic reactions as long as hydration was adequate.

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REFERENCES

1. Bradford, W. L., Brooks, A. M., and Katsampes, C. P.: Therapeutic effect of sulfadiazine and immune rabbit serum in experimental murine pertussis, *Yale J. Biol. and Med.*, 16:435, May 1944.
2. Brainerd, H.: Treatment of pertussis and pneumonia complicating pertussis; role of hyperimmune gamma globulin and sulfadiazine, *J. Pediat.*, 32:30, Jan. 1948.
3. Brattan, A. C., and Marshall, E. K., Jr.: New coupling component for sulfanilamide determination, *J. Biol. Chem.*, 128:537, May 1939.



Cholangiography after Cholecystectomy

Visualization with Cholografin by Vein

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CHOLOGRAFIN® is a new intravenous contrast medium for the visualization of the biliary tract. It is the disodium salt of N,N'-adipyl-bis (3-amino-2,4,6-triiodo)-benzoic acid. It is marketed as a 20 per cent isotonic solution. The iodine content, 64.32 per cent, is firmly bound in the molecule. Actively excreted by liver cells, Cholografin outlines the common duct ten to sixty minutes after injection. The shadow of the common bile duct then fades. If the gallbladder is present, it is seen with maximum intensity in three to four hours. Normally, 10 per cent of the Cholografin is excreted in the urine, and this proportion is increased if there is interference with excretion through the liver.

Cholecystographic examination with oral administration of a contrast medium should be considered a routine method for visualization of the gallbladder. Cholografin by vein provides a way to success where the oral method has failed, and it should be the method tried first in patients who do not have a gallbladder or in the presence of jaundice; also where vomiting or infancy makes the oral route difficult or impossible.

The common duct was visualized in 46 of 58 patients who were examined by this method after cholecystectomy. The failures occurred in patients with liver damage or extrahepatic obstruction severe enough to cause jaundice.

The examination was performed with the patient fasting. Giving 10.0 mg. of morphine sulfate subcutaneously 15 minutes before the injection of Cholografin improved the visualization of the common duct by causing spasm of the sphincter of Oddi. Forty cubic centimeters of Cholografin was given intravenously over a period of five to ten minutes.

About 10 per cent of the patients vomited or felt nauseated. These reactions were not serious in any case. They were most pronounced in ambulatory patients and in some cases may have been due to the morphine. Therefore, 50 mg. of Dramamine® now is given intramuscularly to ambulatory patients 15 minutes before the injection of morphine sulfate, and none so prepared has had the reac-

• A new drug, Cholografin, makes visualization of the bile ducts (hepatic, cystic and common) clinically available.

tions mentioned. In cases in which pancreatitis appears to be a likelihood, morphine is not given lest reflux into the pancreatic duct exacerbate it.

A series of ten "normal" asymptomatic post-cholecystectomy patients were examined. None had a common duct greater than ten millimeters in diameter. Several were reexamined without morphine premedication and the decrease in measurement was only one to two millimeters. Therefore, the authors feel that any common bile duct measuring more than ten millimeters in maximum diameter is dilated. This agrees with a report by Twiss.³ Routine oblique and postero-anterior views are taken at every stage so that overlying densities will not simulate stones. The several changes of position help to mix the bile in the gallbladder (if it has not been removed). With a patient lying quiet, the peripheral layer of iodized bile can concentrate in the gallbladder, leaving the nonopaque center to simulate a stone.

No real contraindication to this examination has been noted. Pronounced biliary obstruction and severe liver damage usually will result in nonvisualization. However, the authors have used the method in patients with those conditions and have occasionally been astonished by the information obtained. No harmful effects were observed.

Following are a few reports of cases to illustrate the usefulness of intravenous cholangiography and cholecystography.

CASE 1. A woman 44 years of age had had severe abdominal pain for three months, and had been vomiting for three weeks. Cholecystitis being suspected, examination with Cholografin given intravenously was carried out and it showed good biliary tract (Figure 1). If attempt had been made to give the drug by mouth, the patient would have vomited it.

CASE 2 (Figure 2). The subject, symptom-free, was a woman 45 years of age, one of ten patients who had had cholecystectomy—in this case two years before because of stones. The common duct

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Figure 1.—The patient had intractable vomiting (probably functional). Intravenous Cholografin visualizes normal biliary tract. The film, made four hours after injection, shows (incidentally) the kidney pelvis.

(Figure 2) was 9 mm. in diameter. (10 mm. is considered the upper normal limit, even after morphine premedication.)

CASE 3 (Figure 3). Several months before examination with Cholografin, the patient, a woman of 76 years, had had cholecystectomy for stones. Cholangiography with the medium introduced by T tube at that time showed free passage through into the duodenum. When the patient again became ill and the liver was enlarged and tender, examination with Cholografin showed the common duct 16 mm. in diameter and also pronounced distention of the hepatic duct and its branches. The presumptive diagnosis was biliary dyskinesia, with functional impediment at the sphincter of Oddi (a condition that is ill-understood).

CASE 4 (Figure 4). A 63-year-old man entered the hospital with an illness that appeared to be acute pancreatitis. He had had several similar attacks since cholecystectomy two years before. Stones had not been found. The serum amylase was very high. Upon examination with Cholografin the common duct was observed to be 15 mm. in diameter with a defect or intrusion at the lower end interpreted as caused by the presence of a stone. At operation several stones were removed. The patient was discharged improved.

CASE 5 (Figure 5). A woman 60 years of age had had occasional attacks of epigastric pain since cholecystectomy 15 years previously. Examination with Cholografin showed a long stump of cystic



Figure 2.—The patient, asymptomatic, had had cholecystectomy two years previously. This film was made 30 minutes after intravenous injection of Cholografin. The common duct was 9 mm. in diameter.



Figure 3.—Film of a postcholecystectomy patient, made 45 minutes after intravenous infusion of Cholografin, shows common duct dilated to 16 mm., attributed to dyskinesia of sphincter of Oddi.



Figure 4.—Two years after cholecystectomy. The film, 60 minutes after intravenous injection of Cholografin, shows common duct 15 mm. in diameter with stones blocking the lower end.

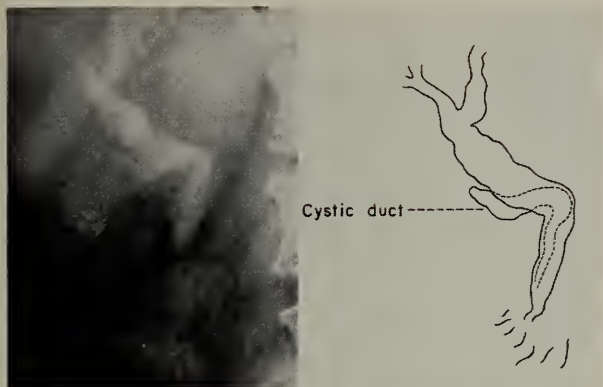


Figure 5.—Fifteen years postcholecystectomy. A film 45 minutes after intravenous injection of Cholografin shows a persistent stump of cystic duct, with free flow of bile into the duodenum and without dilation of the common duct.

duct running posterior to the common duct, but no stones. Some investigators have suggested that such a stump can cause symptoms.

CASE 6 (Figure 6). The patient, a 35-year-old man, had had cholecystectomy 15 years before for stones. Intolerance for fatty foods persisted, with occasional epigastric pain. Four times in the preceding year he had entered the hospital because of diarrhea and vomiting. Serum amylase had never been found elevated. Examination with Cholografin showed the common duct dilated to 15 mm. with reflux into the pancreatic duct which was not dilated. Conservative management sufficed and operation was not needed, but it is supposed that reflux

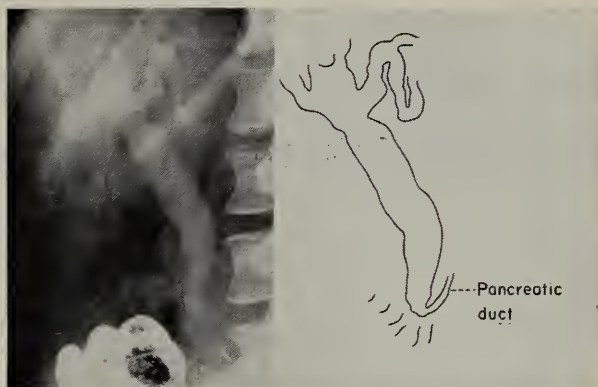


Figure 6.—Fifteen years postcholecystectomy. A film 30 minutes after intravenous injection of Cholografin shows the common duct 15 mm. in diameter and reflux 2 cm. up the pancreatic duct.

of bile into the pancreas could have accounted for the symptoms.

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REFERENCES

1. Berk, J. E., Karnofsky, R. I., Shay, H. and Stauffer, H. D.: Intravenous cholecystectomy and cholangiography, *Am. J. M. Sc.*, 227:361, April 1954.
2. Glenn, F., Evan, J., Hill, M., and McClenahan, J.: Intravenous cholangiography, *Ann. Surg.*, 140:600-612, Oct. 1954.
3. Twiss, J. R., Gillette, L., Berenbaum, S. L., Poppel, M. H., and Hanssen, E. C.: Postcholecystectomy oral cholangiography, *A.M.A. Arch. Int. Med.*, 95:59-65, Jan. 1955.



Operations for Harelip and Cleft Palate

The Emotional Complications in Children

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ANY COMMENTS one might make about the emotional implications in children of operations for harelip and cleft palate are to a large degree a part of the general emotional considerations of operation and anesthesia in children. Before dealing with these general considerations, however, it may be helpful to look upon the bearing that the attitude of the parents, particularly the mother, has upon the problem, and to ponder the effects of the attitude of society towards facial defects.

Harelip seems to be always associated with some degree of facial defect. The disfigurement, even in its mildest form, affects not only the lip but the nose as well. In many cases a mother who has born a child with harelip or cleft palate feels (erroneously) that she is to blame—particularly if she did not wish the pregnancy and tried to disrupt it. Even thoughts of wanting to abort the pregnancy, without actually doing so, may cause a mother to feel irrationally responsible for the child's defect.

The professional persons who assist in her delivery can in some measure lessen these guilt feelings in the mother, as well as the subsequent repercussions of her feelings on the child. The mother should be faced with the facts, the impact of which may be lessened by telling her that it is erroneous for her to think she is responsible for the child's deformity, and that many mothers might feel this way because they feel guilty for not desiring the pregnancy. The obstetrician or other physician is in the position to reassure the mother that corrective operation will improve the defect and the child's facial appearance, and that perfect results may not be needed.

In our culture, the high social premium we place upon physical attractiveness; the tendency of many of us to equate the face, the symbol, with the whole person; the emphasis placed by our mass media of communication on the importance of external appearance—these factors act detrimentally to anyone with a facial disfigurement and may serve to turn even a slight defect into a social and economic handicap. The misconceptions and misinterpretations of society concerning those with facial defects are widespread and have significant influence on the

• Mothers of children who need reconstructive operations for defects present at birth are likely to feel guilty, particularly if the pregnancy was unwanted. The physician treating the child is in a position to reassure the mother and assuage her guilt.

To the child, the meaning of a surgical experience depends not on the type or seriousness of the actual operation, but on the type and depth of imaginings which it stimulates. For children between two and four, the anxiety of separation from the mother is greater than that aroused by the anesthetic. A good relationship with the mother will insulate the child against many traumatic events.

A surgical operation is an important and stressful experience for a child, activating the great childhood fears of abandonment, of mutilation, and of death. Very frequently, children with harelip and cleft palate, by the time definitive restorative surgery is contemplated, have had emotional experiences that make them more than usually vulnerable to the harmful effects of operation. If the child can discuss the products of his imagination about the operation and have them corrected by someone he trusts, the total response will be more adequate. Talking out and playing out help prevent the development of excessive and harmful emotional reactions.

way persons with facial deformity feel about themselves. Hence they are large factors in the development of emotional conflicts. This is not to say that any emotional disturbances present in persons with facial deformities are caused by the defect alone. The elements determining adjustment to facial deformity are intertwined with the particular personality, in specific situations and with the sociocultural environment. Parental attitudes are bound to be significantly influenced by those existing in our society towards human beings with a facial defect.

It is wise for a physician to refer a mother for psychiatric help if strong guilt feelings continue. There may be deeper meanings of the feelings of guilt which can be explored only by the psychiatrist. The mother should be encouraged to clarify her own feelings about her guilt, and about the child, so as not to surround the child with the kind of familial emotional climate which will foster his emotional maladjustment. Mothers of children with a defect not infrequently are overanxious and un-

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realistically concerned about the child, even after the defect has been repaired. A destructive cycle tends to be set up in which the mother's guilt causes overconcern; overprotectiveness causes resentment; the resentment, guilt. It is well to remember that parental behavior influences the genesis of emotional maladjustment in a physically normal child, and to an even greater extent in a child with a deformity.

Now as to emotional complications as related to corrective operations. In a surgical procedure there are three main elements: The hospitalization, the anesthesia, and the operation itself. By the time a child is two years of age, any surgical interference with his body may serve as a focus for the stimulation or reactivation of phantasies of being attacked, overwhelmed, having his physical integrity threatened. The action of the surgeon is interpreted by the child in terms of his level of psychic, emotional development. What the experience means does not depend on the type or seriousness of the operation, but on the type and depth of imaginings which it stimulates.

Surgical operations are, to be sure, frightening and upsetting to a child. His ability to handle his emotional reactions is still incomplete; his capacity for testing reality is small; he may be and usually is confused about his own anatomy. For many children anesthesia, narcosis, represents the threat of death. For some, it may mean punishment or execution. Others may fear loss of control during anesthesia—a fear of losing control over one's own impulses, or the fear of losing control over the environment. For some children, pain is terrifying and they will want to avoid it by any means. For these children, the thought of the anesthetic may be reassuring. These considerations, however, apply more to older children. For younger ones, and particularly those between the ages of two and four years, it is probable that the anxiety produced by separation from the mother is greater than that aroused by the anesthetic. The protecting mother is, after all, the main source of security for the young child. As Anna Freud put it, hospitalization, particularly when it is a concomitant of operation, is a serious measure, separating the child from the rightful owner of his body (his mother) at the very moment when this body is threatened by dangers from within and without.

The younger the child, the less comprehension he has of what is to take place. Generally speaking, the younger the child, the less well-equipped he is to handle anxiety on his own; but also, to the extent that he is less a distinct entity in his own right, and more a part of what we call the child-mother unit, the better insulated he is by that unity and by the child-mother relationship—if it is a

good one, and if the anxiety of the mother is not so great that it is reflected to the child. The better the child-mother relationship, the more love and security the child has to help him cope with an increased anxiety situation. A good relationship with the mother will insulate the child against many traumatic events, but also the degree of emotional trauma will vary with the tools of mastery of tension at the child's disposal, and this will be different with the age of the child and his previous life experiences.

A study of *separation anxiety* that was done in England during the war years, concluded that hospitals should be built so as to permit parents to remain with children whenever those in charge think it is indicated. But the value of this will obviously depend on the mother-child relationship and the anxiety of the mother. The fact that the mother is in the hospital and will not interfere when something is being done to the child may disturb the child. If the mother's own anxiety is eased, she may be able to give ego support to the child.

In addition to activating the great childhood fears of abandonment, of mutilation and of death, a surgical operation may also stir up ideas of transformation, and of getting a baby. After all, for many children, particularly young ones, hospitals are where babies come from.

Generally, it is the child who has a good relationship with his parents who gets the benefit of adequate preparation. Where the relationship between parent and child is hostile or highly conflicted, the mother's attempt at preparation may strengthen the child's feeling that the impending procedure means being sent away or getting punished. It is wise to give the mother a chance to "talk out" her own fears. It is doubtful that preparation by a neurotic mother can be helpful to the child. A mother surrogate, a nurse, a general physician or a psychiatrist may be more useful here.

At best, the unfamiliar preoperative procedures, the strange surroundings and the parental anxiety combine to make the child feel that something terrible is going to happen. He may be permitted little aggressive response to this fear. If he becomes aggressive, he may be threatened, punished, scolded or restrained. Consequently, although he is hostile and frightened, he has to be passive. When he awakes from the anesthetic, he may not know what has happened to him and he imagines the worst. He will usually react with heightened aggression to the motor restraint to which he may be subjected. This will express itself, because it is dammed up, in restlessness, heightened irritability, profane language, etc. The patient's reaction to fear will be the usual one of fight or flight. He may become very angry and want to hurt or destroy those responsible

for his fright. This anger may be expressed verbally, or physically, or he may discharge the fear by playing that he is doing the operation on another child or playing the protecting mother for a doll or young child. Thus he turns the passive role into an active one.

Acknowledgment of the child's fear and expression of his anxiety in play and in talk tend to enhance his assimilation of the experience. Encouraging the child to express his feelings does not mean inviting him to give up control completely. Lack of anxiety is prognostically a bad sign. If the feelings of the child are not openly expressed, either verbally or in physical action, their presence can be detected in his dream life. If an aggressive reaction does not appear or appears and is given up, the child must try to escape. Actually, flight from the fear situation or from the fearful phantasies cannot take place except by the child's submerging his feelings, giving up interest in his surroundings and regressing to simpler and more infantile behavior.

This return to a more childish behavior may be difficult for the adults around him to tolerate. Because the child has submerged his feelings rather than work them out, he may not just develop an aversion to hospitals and anesthesia, which is not so unhealthy. The point is that any future occurrence in which he feels helpless, may reactivate the childhood feelings associated with the earlier traumatic experience so that he behaves inappropriately and with abnormal fear and anxiety in the new situation.

Unlike physical shock, emotional shock may not express itself openly for some time. Therefore, if the child is old enough to talk and understand, it is important that the physician and the parents of a child who is scheduled to undergo an operation, inform him what is going to happen and what he will feel. The opportunity for the child to discuss the products of his imagination about the operation and have them corrected by someone he trusts, helps the total response to be more adequate. Not only before, but also after the operation, the child should be helped to verbalize and to "play out" to the fullest extent his ideas about and his emotional reactions to the operation. Such complete "talking out" and "playing out" is the vital procedure which prevents the development of excessive and harmful emotional reactions, that may result in a lifetime of neurotic unhappiness. All this emotional trauma occurs to some extent even if the surgical procedure is explained to the child and he is allowed to talk out and play out all his ideas and fears, but the phantasies will not be so fully developed, will be less likely to be submerged, and will affect his future reactions less.

Some psychiatrists think that if possible the child should have an opportunity to play out the opera-

tion several months before it is to be carried out, but others feel that this is much too long a period of time for a child to stew in the juice of his own imagination. It is not so much the factual information that the child receives that is important as it is the ability of the child to make use of this information to help him master the new situation with which he is confronted. The factual information may be replaced or remodeled by the child's own phantasies. The effectiveness with which the child can use his defenses is influenced by the extent to which the adults around him comprehend that even a minor surgical procedure can have a great emotional impact.

If an operation is necessary but can be postponed for awhile without great danger to the physical health, and if a careful history reveals that the child already shows symptoms of neurosis or has had unusual traumatic experiences—such as deaths in the family, separation from his family, exposure to adverse parental attitudes, or previous surgical treatment to which he has not responded well emotionally—treatment for the neurosis, or study as to whether the child is reacting inadequately to the traumatic situation, should be carried out before the operation is done. The introduction to the operation and the management during convalescence need more careful handling in the case of such a child than in that of a nonneurotic child.

Consideration should be given to so-called minor incidentals which may be of major significance to the child. He should be permitted to bring something from home, whether a toy or a bit of clothing, which for him may be a link to his home and lessen his separation anxiety. There should be a flexible attitude in the hospital. Ward morale is important. Personnel should not use threats about the operation to secure obedience and conformity. Children should not be exposed to unnecessary trauma such as seeing the results of mutilating operations. Other traumatic factors should be avoided whenever possible—such things as the use of routine enemas involving anal stimulation, taking something from the child against his will, the use of rectal thermometers and the routine of no breakfast before operation, with its meaning of oral deprivation to the child.

Finding the optimal time for carrying out an operation on a child becomes an individualized matter involving study of the child in his past and present background, careful preparation before the event, avoidance of separation anxiety, psychiatric or psychiatrically oriented support and facilities for expression of feeling.

The foregoing discussion of general observations with regard to any kind of surgical operations on

children leads to more specific consideration of children with harelip and cleft palate. The guilt, anxiety and ambivalence of the mothers has already been mentioned. It would be an unusual mother indeed who did not have these feelings to some extent because of her having produced a child with a defect, which may well be for her a defective child. The child is bound to react to these parental feelings. By the time definitive restorative operation is done, most of these children will have experienced some degree of personality conflict and heightened self-awareness, which will be influenced not only by the parental attitudes but by the attitudes of the other persons in their environment. Their body image of themselves; their concept of their physical self, cannot help being influenced to a greater or lesser degree. Feelings of inferiority, frustration and inadequacy are not infrequent.

Although opinions differ as to the age at which the things that happen to a child have emotional meaning for him, it is probably safe to say that during the first month of life, which is when repair for harelip now usually is done, the infant's response to the operation will be primarily in physiologic terms. But the experience, although not clearly differentiated for the infant in terms of emotional or psychic meaning, can still be a traumatic one at a physiologic level. An infant is a living, reacting organism, capable of having impressed on its protoplasm the effect of a traumatic experience, and capable of reacting to the behavior of the individuals in his environment, whether it be an anxious mother or an intolerant nurse. The surgeon should be aware of this and should recognize that although the infant can neither talk nor understand, he does react. In this sense, then, it is worthwhile to try to make even this early an experience as untraumatic as possible. This may involve everything from avoiding overstimulating the infant to handling the anxieties of an anxious mother.

There are additional considerations. If a child with harelip gets a plastic repair in the first month of life, the operation eliminates whatever interference with adequate nutrition the defect causes. But a child who has also a cleft palate is not so fortunate, for he has difficulty in regulating respiration. Sucking, feeding and mastication are more difficult. Although so far as is known there have been no long-range studies of the emotional development of such children, it would seem certain that the interference with two functions as vital as breathing and feeding, which are so intimately connected with the emotional development, should significantly influence their emotional life. There is evidence that there is particular anxiety connected with any traumatic procedures involving the mouth. This body area, particularly in young children, is highly

charged emotionally. It is the primitive organ of perception and exploration of the world (babies find out about the world and test it by putting everything into their mouths). It is the earliest area for pleasurable satisfaction. It is the portal for the physical nourishment upon which the infant's survival depends. Many adults continue to find their pleasure mainly via the mouth, as in eating, drinking, smoking, or sexual enjoyment. Pain in this region may be especially difficult to tolerate. Immobilization of the mouth is particularly difficult to endure because of its use in eating and breathing and also because it is a primitive weapon of defense.

It seems probable, therefore, that often by the time definitive restorative operation is contemplated, the patient has had emotional experiences that make him more than usually vulnerable to the harmful effects of surgical treatment. There may be little point in correcting a physical defect if the operation increases the emotional maladjustment.

The defect will of course vary in extent and severity. Many of the patients will require multiple surgical procedures, which may extend all the way into adolescence. Some will be more facially disfigured than others. Some will have more understanding and adequate parents. Some will be more adversely affected than others by previous operation. Opinions vary among plastic surgeons as to the best time for repair of cleft palate; some believe it should be done in the first year or later, others as late as the fourth year. There are those who even question whether repair of a cleft palate should be done at all. Some feel that it is essential that operation be performed before speech habits have been formed—before the end of the second year.

Comprehensive care includes speech training after operation as well as whatever orthodontic work may be necessary. The fact that in these children the development of speech is usually delayed, and that before speech training it may not be too intelligible after it develops, increases the difficulty of communication and also the difficulty of attempts to ameliorate the traumatic effects of operation by inducing the patient to "talk out" and "play out" his resentments. The difficulty that others have in understanding the speech of the child has its effect on persons in his environment, which is reflected back to the child. There are other complicating factors, such as diminished hearing and a tendency to ear infections because of a collapsed eustachian tube.

Theoretically the defect or defects should be repaired as early in life as possible, compatible with the physical safety of the child and the minimization of emotional trauma. It may be de-

sirable, whenever possible, to correct a cleft palate before definite speech patterns have formed, for speech patterns are likely to be less defective and speech training more effective. Also, the greater closeness of the child-mother unit when the child is very young may insulate against too harmful emotional effects of an operative procedure. Balanced against this, however, is the fact that at a later age—say three years—the ability of a child to cope with anxiety is better; his understanding is increased, and the possibilities of minimizing emotional trauma by verbalization and “playing out” are increased.

No rule as to time of operation is applicable in all cases. Every child has to be considered on an individual basis, and with a knowledge of the parental attitudes and the emotional climate in which he exists. Obviously such factors as the degree of defect and the probable extent and number of operations have to be considered also.

Although the surgeon who is to operate upon a child for repair of harelip or cleft palate cannot be expected to have the time or the technical skill to carry out the various procedures mentioned to minimize the traumatic emotional impact of operation, he quite probably will feel that it is desirable that this be done. A child psychiatrist would seem to be the logical person to perform this task. Whether a family is able to pay for a plastic operation on a private basis or the child is to be cared for under the auspices of an agency like Crippled Children Services, the services of a child psychiatrist, once they are considered desirable, are possible from an economic point of view. So far as the

surgeon is concerned, in either case he can acquire the services of a physician with the professional training and interest to function collaboratively in a team effort to provide as comprehensive care as possible for child and family. The advantages not only for child and parents but also for the surgeon seem obvious. Having someone to cope with an anxious mother and a frightened child, before and after operation, can only make the surgeon's job easier.

One final point. Hospitals do of course have rules, regulations and administrative procedures, some of which are necessary. Nevertheless, flexibility and a reasonable degree of adjustment to the individual patient is desirable. Hospital and ward personnel are not immune to the attitude of the attending physicians, nor are hospital rules and procedures entirely uninfluenced by the stated desires of the professional staff. Hospital personnel, too, need to develop a more comprehensive attitude of mind, which realizes that the child on the ward is not a cleft palate but a total personality who reacts to and is influenced by the attitudes and behavior of those around him. This kind of orientation filters down best to hospital and ward personnel from the top. Usually when the surgeon himself is aware of the emotional implications to child and family of the defect for which he is doing restorative operation, he will see to it that all concerned with the child under his care will be similarly interested in the kind of management of the child that will insure maximum benefit and minimal emotional trauma.

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Neisserian Conjunctivitis

Treatment with Penicillin

JOSEPH R. HUNTSMAN, M.D., Los Angeles

STRUBLE AND BELLOWS⁴ suggested that local treatment with penicillin might be very effective in gonorrheal conjunctivitis. Miller² treated one patient with penicillin ointment plus 100,000 units intramuscularly every four hours for eight days, with poor results. Sorsby³ reported 14 cases in which excellent results were obtained solely by instilling penicillin solution into the eye; he found instillation was necessary every five minutes for the most rapid cure. Lewis¹ reported good results in 30 cases in which penicillin was used topically, but in those cases the antibiotic was given intramuscularly also.

At the Los Angeles County General Hospital, the use of penicillin in the treatment of gonorrheal conjunctivitis was begun in August, 1944. At first, various combinations of penicillin and sulfonamides were tried both locally and systemically. Later the sulfonamides were discarded entirely and specific treatment consisted of either intramuscular plus local administration of penicillin or local use alone. From records of the 45 cases treated up to February, 1947, it is apparent that intramuscular administration of penicillin plus mechanical cleansing of the conjunctiva with normal saline solution sufficed in most cases; it is also apparent that in some cases topical use of penicillin was a necessary adjunct. In fact, in some instances topical administration alone rapidly cured the disease in cases in which it was becoming worse rapidly on a regimen that included intramuscular use of penicillin and other therapy. In those instances, smears of exudate from the infected area were negative for gonococci and clinical improvement was noted as early as five or six hours after topical use was begun.

THERAPY AND RESULTS

Four different therapeutic regimens were used in a series of 45 cases:

1. Seven patients received intramuscular penicillin and irrigation with a 1 per cent sulfanilamide solution. In two of these cases the disease showed rapid progression and the treatment was classified as a failure.

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Submitted October 11, 1955.

• Data on treatment of 45 patients with Neisserian conjunctivitis demonstrate that penicillin is a reliable therapeutic agent in this disease. Exudate must be frequently flushed out of the conjunctival sac to prevent corneal ulcer and endophthalmitis. Penicillin may be administered intramuscularly or topically, in solution.

The use of penicillin solution topically has been demonstrated to be superior to intramuscular penicillin in some cases, and to be adequate in all cases, even when saline solution irrigations are the only other therapy.

2. Sixteen patients received penicillin intramuscularly plus local instillation of penicillin solution with no failures.

3. One patient received penicillin intramuscularly plus penicillin ointment. This therapy failed.

4. Twenty-four patients (including the three above mentioned in whom other therapy had failed) received penicillin instillations as the only specific therapy. There were no failures in this group.

Dosage of penicillin given intramuscularly varied from 1,250 units every three hours to 50,000 units every four hours. In all cases in which irrigation with 1 per cent sulfanilamide solution was not carried out, irrigation with normal saline solution was done every five minutes, the frequency being changed later to that which was necessary to keep the eye free of pus. The concentration of penicillin used at first was 500 units per milliliter of normal saline solution. Later, the concentration was reduced to 250 units per milliliter. One milliliter of 1:1000 epinephrine was added to each 40 milliliters of solution. The epinephrine apparently aided in reducing edema and in retaining the antibiotic locally.

If a patient receiving penicillin intramuscularly had infection of only one eye, it was routine to cover the unaffected eye with a celluloid shield. If only topical penicillin therapy was being carried out, it was found wise to treat the unaffected eye also for the first four or five hours, after which a celluloid shield was placed over it.

DISCUSSION

Certain incidental information developed from experience with the topical use of penicillin in the

present series: Initially the solutions should be instilled every five minutes. Both eyes should be treated at first, even though clinically only one eye is involved. The addition of epinephrine to the penicillin appears to be a material improvement. Cleansing with normal saline solution or some other nonirritating irrigant is important. Dilatation of the pupil is important when there is any involvement of the cornea or deeper structures.

No instances of sensitivity to penicillin were noted in this series, and no permanent defect was noted after treatment was stopped.

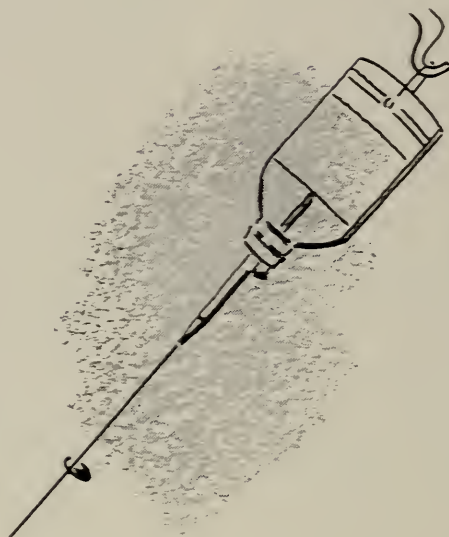
When only one eye is involved, it is imperative to cover the unaffected eye with a Buller shield and

always to make sure that when the involved eye is irrigated the patient's head is turned so that the fluid runs away from the eye that is not infected.

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REFERENCES

1. Lewis, P. M.: Penicillin in gonococcal conjunctivitis; its use in 30 cases, compared with sulfonamides in 173 cases, *Am. J. Ophth.* 29:694-698, June 1946.
2. Miller, M. E.: Gonorrheal ophthalmia: report of case treated with penicillin, *J. Indiana M. A.* 37:679-681, Dec. 1944.
3. Sorsby, A.: Local penicillin therapy in ophthalmia neonatorum, *Brit. M.J.* 1:903-906, June 30, 1945.
4. Struble, G. C. and Bellows, J. G.: Studies on distribution of penicillin in eye and its clinical application, *J.A.M.A.* 125:685-690, July 8, 1944.



Duodenal Ulcer

Rationale and Results of Antrectomy and Subtotal Vagotomy

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ALTHOUGH THE BASIC CAUSE of duodenal ulcer remains unknown, the importance of gastric acidity is a generally accepted premise motivating the surgical treatment of this lesion. Whereas adequate reduction of acids seems essential, complete achlorhydria seems neither necessary nor desirable. Since the vagus nerves are known to be of physiologic importance, they should not be destroyed unless necessary. Despite the apparently conflicting results of animal experiments the physiologic importance of the antrum also seems to be established now. Therefore the antrum likewise should not be destroyed unless necessary. Unfortunately, in the light of available data, it appears that it is necessary to remove most of both of these elements in order to obtain the best collective clinical results in the surgical treatment of duodenal ulcer.

There is experimental evidence in dogs that the stomach possesses an adequate intragastric acid regulating mechanism not necessarily dependent upon duodenal regurgitation. The neutralizing capacity of the duodenum of dog in vivo is in excess of physiologic needs.^{5, 6, 7}

What, then, breaks this regulating mechanism in certain persons, permitting the occurrence of duodenal ulcers? Possibly one reason this question remains unanswered is that animals available for study do not possess the clinical ulcer diathesis of humans. How then can one know that the results are comparable? Furthermore, marginal ulcers rarely occur in humans who have not had duodenal ulcer.⁸

About ten years ago one of the authors (Stevens) became somewhat doubtful about resection of two-thirds or more of the stomach for duodenal ulcer. Concern over the incidence of weight loss, anemia and the mutilating nature of this procedure for a benign lesion was inescapable. A further consideration was that results of fundusectomy in dogs were disappointing from a long range standpoint. Fur-

• Results in a series of 107 cases indicated that antrectomy (hemigastrectomy) combined with subtotal vagotomy of both vagus nerves for duodenal ulcer is followed by better overall results than the more radical subtotal gastrectomy or vagotomy plus drainage procedures.

Antrectomy combined with total vagotomy is followed by a slightly smaller incidence of marginal ulcer but is accompanied by more motility disturbances.

thermore, the incidence of marginal ulcers persisting after multiple high resections was discouraging.

Clinical study of hemigastrectomy alone including the antrum was discontinued after the occurrence of a marginal ulcer within six months after operation in one of the first eight patients so treated. Experience with vagotomy procedures was likewise somewhat discouraging, owing to disturbances of motility and the occurrence of marginal ulcers two years after operation in three of the first 43 patients subjected to the operation.^{3, 9} Two of these patients had negative insulin tests. Hence interest turned to the possible effects of a less mutilating combined surgical attack on both the nervous and hormonal elements involved in the secretion of gastric acid by some form of antrectomy and vagotomy which might be effective yet lessen the incidence of untoward side effects. It was decided to study a relatively small control series of cases carefully. The procedure adopted was conservative hemigastrectomy including most of the antral element with subtotal vagotomy of both vagus nerves. Division of only one vagus nerve already had been observed to be of no value. The subtotal rather than total vagotomy idea evolved from the concept that motility disturbances might be eliminated.

There was, understandably, some early condemnation of this procedure on the basis that it constituted inadequate gastric resection and inadequate vagotomy. Opposed to this attitude, however, was the observation that the secretin-like acid-stimulating factor seems to be largely in the gastric antrum and that without the antrum the fundic secretion of acid is reduced. To quote Walters¹⁵: "In my experience from 72 per cent to 75 per cent of such cases have obtained a relative achlorhydria follow-

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ing Billroth II or Polya types of operation for duodenal ulcer. This is in contrast to 12 per cent who obtain it following a gastroenterostomy and 34 per cent to 36 per cent when a vagotomy and gastroenterostomy are done simultaneously." It is pertinent that stomal ulcers that developed after exclusion operations have been cured by secondary operation to remove the remaining antrum.

Woodward and Stevens recently began an experimental study in dogs to ascertain the comparative effect of antrectomy and gastroenterostomy alone in the reduction of gastric acids. The approach is more physiologic than those heretofore undertaken. Results will be published when the study is completed.

The recent antral pressure theory seems untenable clinically in some cases for two reasons. One is that it is difficult to conceive a consistently significant antral pressure, even with the antral pouch closed by suture and with spasmodic pyloric contraction, except in cases of obstructing duodenal ulcer preventing adequate drainage through the duodenum. Secondly, stomal and recurrent duodenal ulcers following so-called complete vagotomy with negative insulin tests and well placed adequate gastroenterostomy or pyloroplasty have been cured by subsequent gastrectomy including the antrum.^{10, 11} No more than normal physiologic pressure obtains in those cases.

It seems inconceivable either that the antral pressure factor can be eliminated in all cases or that the acid inhibiting factor (which operates in the relatively empty stomach) can be sufficiently activated with the stomach full of food, regardless of what kind of gastroenteric opening is made to enhance the emptying of the stomach. Results supporting these concepts were noted in studies of animals without ulcers in which there is a known adequate acid-regulating mechanism. In patients with ulcers, this mechanism apparently is impaired.

The value of subtotal section of both vagus nerves appears more subject to question. However, a fair estimate is that vagotomy is complete in only 60 per cent to 80 per cent of cases.² Gastroenterostomy alone prevents marginal ulcers in half of the incomplete vagotomies, and since stomal or recurrent duodenal ulcers do not develop at all in the other half, how can one arbitrarily assume that incomplete vagotomy is of no value?

Probably the term *adequate vagotomy* were better than *total vagotomy*, since vagus fibers traverse the esophageal musculature in an appreciable number of cases. The only way to make sure of total vagotomy in all cases would be transection of the esophagus—too hazardous a procedure for use in dealing with a benign lesion.

Recent reports of competent clinical surgeons suggest that antrectomy and vagotomy for duodenal

ulcer is the procedure of choice. The results reported parallel the longer experience of the authors.

METHOD

The method of operation used is comparatively simple. The photographs^{2, 15} of anatomic dissections of Dragstedt and Woodward,² Walters¹⁵ and others clearly show that most of the fibers of both vagus nerves accumulate between the lesser curvature of the stomach and the coronary artery. On this basis, subtotal section of both vagus nerves was effected in the earlier cases in the series by dissection, cleaning off the lesser curvature of the stomach to a point just below the gastroesophageal junction and making a high mass ligation of the vagus nerve fibers including the coronary artery (Figure 1, *left*). In more recent cases, more complete vagotomy was done (Figure 1, *right*).

The antral element in humans, unlike that in dogs, appears to shade out up to at least the middle portion of the lesser curvature of the stomach. Therefore, in order to eliminate this element as much as possible, the stomach was divided at the midportion of the lesser curvature, great care being taken in selecting the midpoint. Since the portion of the stomach above this portion is wider than the portion below it, hemigastrectomy as carried out in this series involved the removal of between 40 and 50 per cent of the stomach.

After it was noted that removing the duodenal ulcer was not necessary if there was no pyloric antrum left intact, excision of the ulcer was dispensed with. The duodenal stump was closed simply by a continuous through-and-through chromic 000 catgut suture and a second inverting continuous layer of chromic 000 catgut including the anterior surface of the duodenum and the capsule of the pancreas. The angles were reinforced by interrupted silk or cotton sutures.

Gastrojejunal anastomosis was effected simply by two continuous layers of chromic 000 catgut sutures, one merely a running-over suture and the other a continuous inverting seromuscular suture. Since the only tension on the suture line was at the angles, reinforcement with interrupted cotton or silk sutures was done there only. Anastomosis of an anterior Polya type was used—a long proximal jejunal loop attached to the lesser curvature with the distal loop emerging from the greater curvature. A modified Hofmeister or a tuck procedure devised by the authors was carried out at the distal end of the lesser curvature.

When the anastomosis is completed it is important that the stomach be placed in the left side of the abdomen to prevent the site of the gastrojejunal anastomosis from adhering to the more narrow

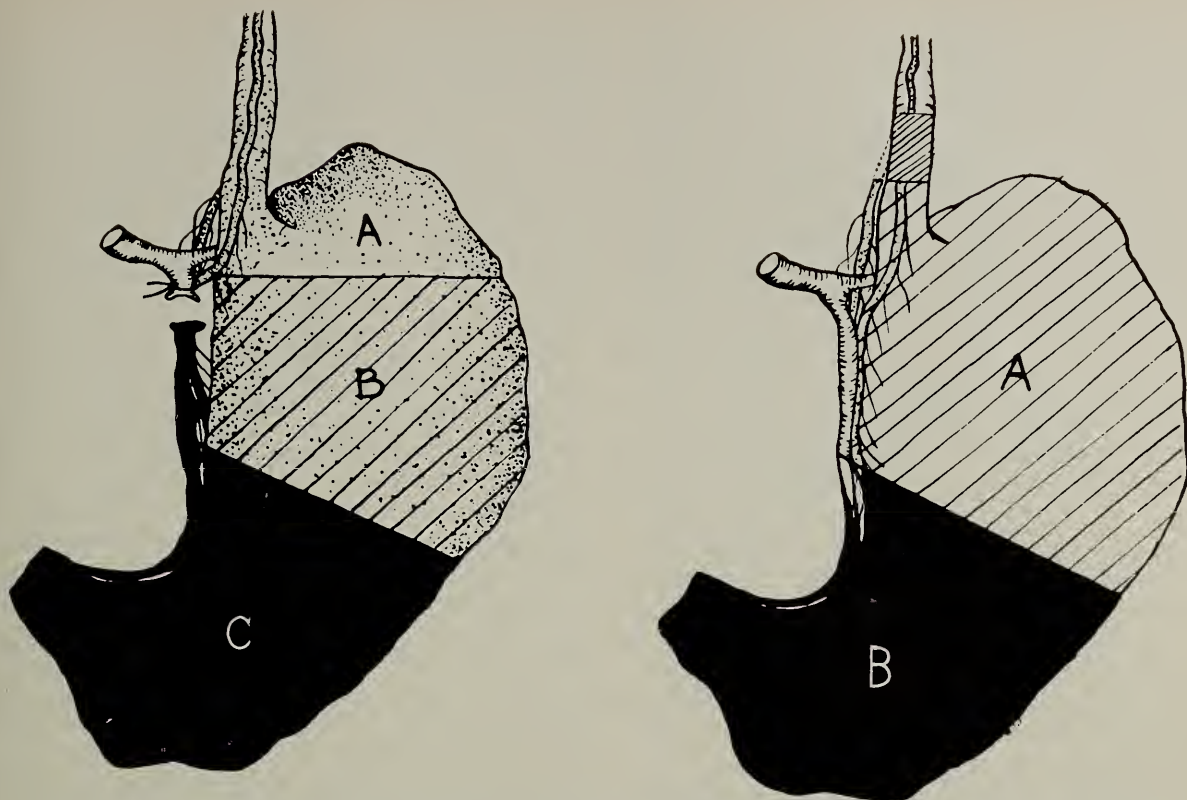


Figure 1—*Left*: Division of the accumulation of the fibers of both vagus nerves between the lesser curvature of the stomach and the left gastric artery is shown. *A*—Vagus nerve fibers intact. *B*—Denervated portion of remaining stomach after hemigastrectomy. *C*—Portion of stomach removed. Subtotal vagotomy of this type results in no motility disturbances. *Right*—So-called total vagotomy. *A*—Denervated portion of remaining stomach. *B*—Portion of stomach removed. In vagotomy of this type, motility disturbances occur in some cases.

space between the vertebral column and the anterior abdominal wall in the midline.

The method of wound closure consisted of continuous chromic 0 and chromic 00 layer closure and continuous everting wound closure supplemented by through-and-through heavy silk retention sutures placed not more than an inch away from the midline and not more than an inch apart.⁴

This procedure from skin incision to skin closure, can be carried out without haste in not more than an hour and a half and sometimes in less than an hour.

The procedure was arrived at through trial and error. Originally the anterior Polya anastomosis was constructed with a short proximal jejunal loop attached directly to the lesser curvature. There were incidences of proximal loop dilation, apparently from the current of food entering the proximal loop from the pathway along the lesser curvature of the stomach (magenstrasse). This seemed to be the cause of certain instances of dumping-like syndromes. There were also instances of proximal loop obstruction in these cases.

In an attempt to correct these complications, the procedure was reversed: The proximal loop was placed at the greater curvature and the distal loop

at the lesser curvature. This procedure was discontinued because there was difficulty in emptying of the stomach in certain cases. The greater curvature of the stomach stretched more than the lesser curvature, and pockets developed at the lower elongated curvature angle, where accumulations of barium were observed roentgenographically.

The procedure was then again reversed, placing the proximal loop at the lesser curvature. This time, however, a long proximal loop was used to prevent proximal loop obstruction (Figure 2). There is no contraindication to this, as absorption of alkaline juices in such a loop is negligible. How long to make the loop cannot be said exactly. It suffices to select a portion of jejunum of adequate length where the mesentery is long enough to leave enough space for the transverse colon and mesocolon to pass behind it without undue pressure. (In the present series, if the omentum was unduly large it was partially resected.) Care must be taken, however, not to make the proximal loop so long that it could slip behind the distal jejunal loop and thus become obstructed. With a loop of proper length this complication can be prevented by two precautionary measures. The site of anastomosis should be, as nearly as practicable, at the first long seg-

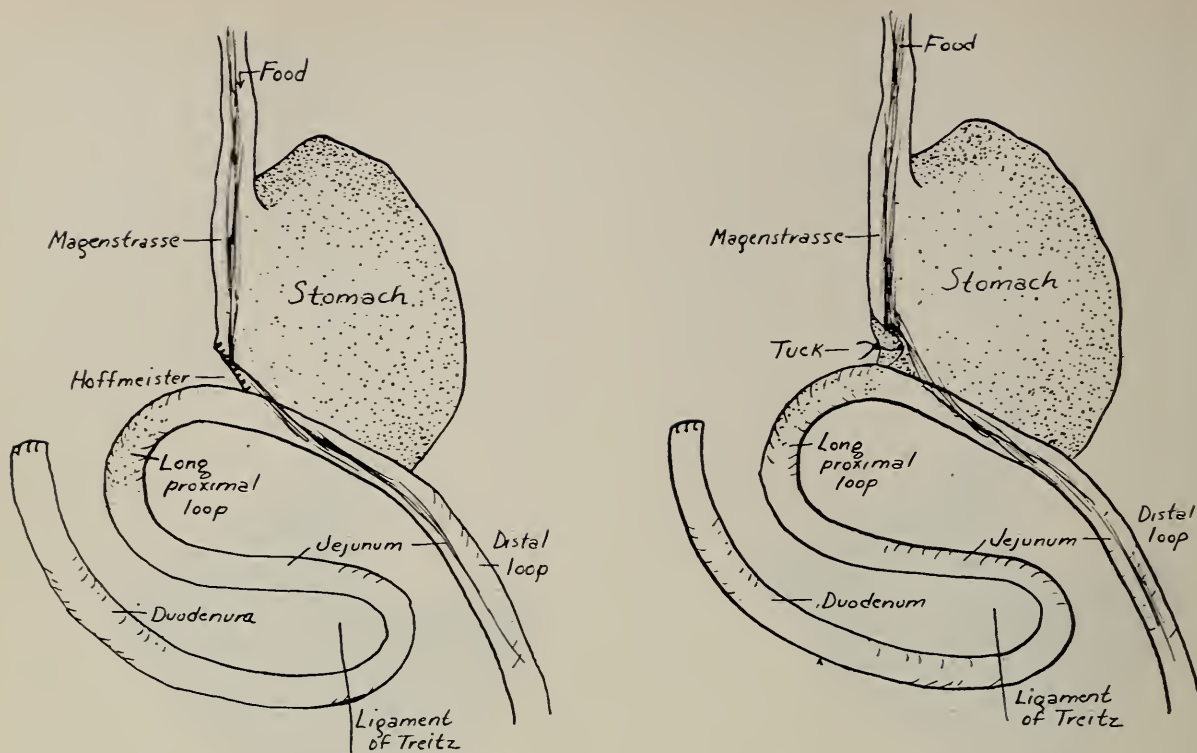


Figure 2.—Satisfactory modifications of anterior Polya procedure, which prevent proximal loop distention. The long loop precludes proximal loop obstruction.

ment of mesentery. A long segment of mesentery between the ligament of Treitz and the lesser curvature of the stomach results in a redundant proximal loop which can possibly fall to the left behind the distal loop. Placing the anastomosed stomach to the left side of the abdomen is also helpful, for then the point of emergence of the proximal jejunum from the ligament of Treitz and the point of jejunal attachment at the gastric lesser curvature are more or less in line on the left side of the abdomen. Thus the distance between these two points is shortened and the proximal jejunal loop need not be so long.

In order to divert the flow of gastric contents from the proximal loop, either a Hofmeister or a tuck procedure was carried out on the lesser curvature of the stomach (Figure 2).

Early in the series, posterior Polya procedures were used. Subsequently either posterior or anterior anastomosis was done, the choice depending upon conditions in each case. Finally the anterior procedure was done routinely. It saves time and so far as could be observed there are no contraindications.

RESULTS

One general observation with regard to results was that in the first six months after operation there was a good deal of variation between cases, but after six months the results were consistent. Pos-

sibly a factor is a compensatory enlargement of the stomach in that period. It is important that in future comparisons this time factor be kept in mind.

In a preliminary report in 1948 of a relatively small series of hemigastrectomy of the Polya type with subtotal vagotomy of both vagus nerves, and in subsequent reports, one of the authors expressed the belief that the more radical so-called adequate gastric resection should not be discarded generally.^{12, 13} In the light of subsequent experience he changed his mind.¹⁴

The present series is made up of 107 cases and the average time of observation since operation is six years. The operations were done at St. John's Hospital and at Wadsworth Hospital.

Only one patient in the series had a marginal ulcer and there was no recurrence following a more complete vagotomy six years ago. The patient has had motility disturbances, however. On this basis it would appear that, had complete vagotomy been done in all cases, there would have been no incidence of marginal ulcer in this series. How this would have affected the good results so far as motility is concerned is problematical.

Postoperative data included roentgen studies with barium. In no instance was gastric retention, proximal loop obstruction or dilatation or other motility disturbances demonstrated.

In one case symptoms of a dumping-like syndrome were present. In two other cases this syndrome may have been present but the patients were profoundly psychoneurotic and it was difficult to elicit postoperative symptoms accurately.

The night secretion following hemigastrectomy and subtotal vagotomy was 450 cc. 2° acid. This compares with night secretion of 530 cc. 2° following vagotomy and gastroenterostomy in an earlier study.⁹ The preoperative secretions in both groups were essentially the same.

Following hemigastrectomy and subtotal vagotomy the histamine acidity was reduced from a preoperative average of 65.5° to a postoperative average of 25.3°. This is in contrast to the previous study of vagotomy and gastroenterostomy which showed a reduction from a preoperative histamine acidity average of 52.4° to a postoperative average of 45°. Following hemigastrectomy and subtotal vagotomy the insulin acidity was reduced from a preoperative average of 74° to a postoperative average of 18.3°. This was in comparison to our vagotomy and gastroenterostomy study in which the preoperative insulin acidity average was 64° and the postoperative average 13°. It is thus clearly evident that in the present series the addition of antrectomy to vagotomy produced a much greater lowering of histamine acidity than did the addition of gastroenterostomy to vagotomy.

Pronounced loss of weight occurred in two cases. In one case the loss was not regained but the patient was considerably overweight before operation, possibly owing to ingestion of large amounts of cream, and his present weight is normal for his height and build. The patient says he feels well.

None of the patients had anemia postoperatively. There were no complications incident to leakage of the duodenal stump or gastrojejunal anastomosis. None of the patients died.

COMMENT

Surgeons associated with the authors have recently complemented the present study with a series of 42 cases in which the patients were treated by Billroth I hemigastrectomy with attempted complete vagotomy at the Wadsworth Hospital. This phase of the study is being continued. The morbidity so far in this group has been greater than it has been with the Polya-type procedure in our larger series. In four of the 42 cases it has been necessary to replace the gastroduodenostomy with gastrojejunostomy to correct inadequate emptying of the stomach.

While the Billroth I procedure should not be condemned on the basis of results in this small series of cases, certain known objections to it do condemn overenthusiasm for the procedure. In dogs the

duodenum is more resistant to acid than is the jejunum. This is probably true in humans also, although there is no proof of it. However, duodenal regurgitation is spasmodic and neutralization of the potential ulcer area in the anastomosed duodenum is not constant, whereas the jejunal stoma in a Billroth II or Polya procedure is constantly bathed with alkaline duodenal juices. This is consistent with relative achlorhydria in 72 to 75 per cent of cases after Billroth II or Polya operations and in only 40 per cent of cases after Billroth I operations for duodenal ulcer.¹⁵

Theoretically, fat digestion should be aided by food passing through the duodenum. However, in the present series there was no laboratory or clinical evidence of lack of fat digestion associated with the Polya operation.

Although duodenal ulcers may occur in bizarre locations,¹ most of them are within a relatively small area on the anterior wall. In the usual Billroth I procedure, unless the anastomosis is constructed especially to prevent it, after operation the gastric contents, following the *magenstrasse*, strike the duodenum in relatively the same place as they did before; and it is at that place that most recurrent ulcers form. These factors also obtain with pyloroplasty. Furthermore, the operation is technically not feasible in cases where the duodenum is unduly friable. In a significant number of cases it implies resection of the ulcer, which is unnecessary in the Polya or Billroth II procedure.

Since it is now known that marginal ulcer occasionally occurs even after the most radical subtotal gastric resection with supplemental total vagotomy, it is evident that nothing short of total gastrectomy will completely prevent recurrence. This, of course, is too radical a procedure for a benign lesion.

The crux of the problem rests in the following inescapable facts.

Marginal ulcers following vagotomy and gastroenterostomy have been cured by subsequent hemigastrectomy. On the other hand, marginal ulcers following gastrectomy have been cured by subsequent vagotomy. It seems, therefore, that in the one case the hormonal factor and in the other the vagal factor is predominant.^{9, 10, 11} Unfortunately, no accurate method has been devised to tell which is which preoperatively.

With simplified antrectomy and vagotomy as utilized in the present series, mortality is no greater than with vagotomy and gastroenterostomy. This does not apply to subtotal "adequate" gastrectomy including removal of the ulcer.

From a practical standpoint, then, until preoperative selection of cases can be counted upon, it seems that conservative antral gastrectomy combined with

some form of sectioning of both vagus nerves constitutes a procedure involving minimal anatomic and physiologic mutilation consistent with optimal results.

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REFERENCES

1. Conti, J. G., Foltz, T. P., and Stevens, G. A.: Surgical and roentgenologic aspects of duodenal diverticula, *J.A.M.A.*, 138:403-405, Oct. 9, 1948.
2. Dragstedt, L., and Woodward, E. R.: Personal communication.
3. Kipen, C. S., and Stevens, G. A.: Early and delayed clinical effects of vagotomy for peptic ulcer. (A clinical and statistical study), *Arch. of Surg.*, 59:814-824, Oct. 1949.
4. Marsh, R. L., Coxe, J. W., Ross, W. L., and Stevens, G. A.: Factors involving wound dehiscence: A study of one thousand cases, *J.A.M.A.*, 155:1197-1200, July 31, 1954.
5. Stevens, G. A.: The neutralizing capacity of the duodenum and the several juices entering it, *Proc. Staff Meetings of the Mayo Clinic*, 8:709-711, Nov. 22, 1933.
6. Stevens, G. A.: Capacity of the duodenum to neutralize, buffer and to dilute acid. (A comprehensive physiologic study on dogs), *Am. J. Digest. Diseases & Nutrition*: 2:288-293, July 1935.

7. Stevens, G. A.: Capacity of the duodenum to neutralize, buffer and to dilute acid, *Collected Papers of the Mayo Clinic*, Vol. XXVII, p. 98, 1935.

8. Stevens, G. A., and Boeck, W. C.: Surgical treatment of hemorrhage incident to gastroenterostomy for hypertrophic pyloric stenosis of infancy, *J.A.M.A.*, 124:160-161, Jan. 1944.

9. Stevens, G. A., Kipen, C. S., and Ross, W. L.: Comparative concurrent results of vagotomy procedures, conventional gastric resection and hemigastrectomy with subtotal vagotomy, *Calif. Med.*, Vol. 73, No. 3, Sept. 1950.

10. Stevens, G. A., and Kipen, C. S.: Surgical treatment of gastrojejunal ulcer, *J.A.M.A.*, 143:1138-1139, July 29, 1950.

11. Stevens, G. A., Kipen, C. S., and Ross, W. L.: Surgical treatment of duodenal ulcer, *Ann. West. Med. & Surg.*, 5: 275-278, April 1951.

12. Stevens, G. A.: Treatment of duodenal ulcer by conservative gastric resection with partial vagotomy, *Calif. Med.*, 29:252, Oct. 1948.

13. Stevens, G. A.: Conservative gastric resection, *Bulletin L. A. Surgical Society*, 1:30-34, June 1948.

14. Stevens, G. A.: Hemigastrectomy and vagotomy (discussion of paper by Dr. R. M. Bolman and Dr. R. P. Lloyd), *Transactions Western Surg. Assn.* 1954.

15. Walters, W.: Personal communication.



Hypertension in Childhood

Treatment of Acute Nephritis with a Derivative of *Veratrum Viride*

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DURING THE winter and spring of 1952, 63 children with acute nephritis were observed on the wards of the Los Angeles Children's Hospital and the Los Angeles County General Hospital. Ten of them had signs and symptoms ordinarily associated with severe hypertension, and their blood pressure stabilized above 160 mm. of mercury systolic and 100 mm. diastolic. In an effort to lower these pressures and to relieve the associated hypertensive phenomena, the children were given a new derivative of an ancient drug. A prompt and uniform hypotensive effect was observed.

The Present Problems of Acute Nephritis

Since penicillin became available in adequate amounts many diseases associated with the beta streptococcus have been controlled more effectively and have been accompanied by fewer complications. A decreased incidence of these diseases in the general population has often coincided with this reduction in morbidity. This has held true for scarlet fever, streptococcal pharyngitis and erysipelas, and, to a lesser extent, for rheumatic fever. Acute nephritis appears to be an outstanding exception. Despite the use of antibiotics, the incidence of nephritis has shown little change in the past ten years. The number of cases seen each year at the Los Angeles Children's Hospital ranged between 20 and 35 for many years and has recently increased—to 42 in 1952 and to 57 in 1953. (This apparent epidemic coincides with a doubling of the overall admission rate to the hospital, and probably does not represent an absolute increase in the number of cases in the general population.)

Antibiotics also have had an important effect on other aspects of acute nephritis, notably the mortality rate. Upon investigation of autopsy records it was noted that the children who died with acute nephritis were, in most instances, overwhelmed by secondary infections and did not die of renal, heart, or lung complications of the disease. As antibiotics became generally available the death rate began to fall. Since 1947 there have been no deaths from

• Alkavervir (Veriloid®), a new derivative of *veratrum viride* was used in the treatment of hypertension in ten children with acute nephritis. The patients had a variety of complications associated with hypertension—heart failure, convulsions, vomiting and headache. In all of them the blood pressure decreased soon after the drug was given.

acute nephritis at the Los Angeles Children's Hospital.

Therefore it might well be held that if antibiotics are given, and secondary infection controlled, the child will survive the disease regardless of the severity of nephritis. Yet one phase of the disease—the hypertensive—usually requires vigorous treatment. In this crucial period of acute nephritis the results of permitting the disease to run its course may well be heart failure, convulsions or coma. More remote possibilities are permanent cardiac or brain damage.

Acute Nephritis: Hypertensive Phase

The cause of hypertension associated with acute nephritis is not clear. Even less is understood, as a recent report by Derow² emphasized, about the relationship of hypertension and cardiac or cerebral phenomena. The clinical consequences of hypertension are known to a limited extent. Of major concern is the effect of sustained high blood pressure on the heart and brain. Therapy in the hypertensive phase is directed primarily toward prophylaxis of major cardiac and cerebral damage. Permanent renal damage is rare and treatment directed primarily toward the kidney usually is not indicated.

Myocarditis is a frequent concomitant of acute nephritis and it may occur in a normotensive patient. When hypertension is present the dangers of organic myocardial lesions, infarction and possibly permanent heart damage are increased. Similarly, it has been observed that the convulsions in encephalopathic states can occur when the blood pressure is normal. This suggests that factors other than hypertension may be present in most cases of brain disease associated with acute nephritis. But as the pressure rises quickly and steadily to excessively high levels the risk of coma and brain damage be-

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Submitted April 5, 1955.

comes proportionately greater. Notwithstanding the importance of other factors, it seems clear that acutely elevated blood pressure levels may have a harmful effect on the heart and brain of the sick child.

Hypotensive Agents

Specific therapy for the hypertensive phase is often difficult. Many agents have been tried but only a few have survived more than a few clinical trials. Surgical procedures, including kidney decapsulation and sympathectomy¹ have also been used. The many angles of approach to this problem suggest that the ideal agent has not yet been found.

An ideal hypotensive agent might be described as one which: (a) Reduces the blood pressure quickly and safely; (b) controls the factors other than hypertension, which contribute to cardiac failure, specifically factors which produce a low cardiac output; (c) reduces the dangers of damage to the brain by reversing cerebral vasospasm; (d) has a beneficial, or at least a nonharmful, effect on kidney function. The ideal agent should also have a wide margin of safety and a minimum of severe side effects, and it should be compatible with digitalis.

The one drug which has been used most frequently in this disease is magnesium sulfate. Despite its depressant effect on the central nervous system, and a similar depressant action on cardiac function, it has remained the agent of choice. Etteldorf and co-workers³ noted that magnesium sulfate has a beneficial effect on the kidneys, increasing renal blood flow and renal output.³ When used carefully magnesium sulfate does have this definite advantage over many other agents, particularly those which depress kidney function. The chief disadvantage of magnesium sulfate is its inconsistent action. In a high percentage of cases (in some series 50 per cent or more) magnesium sulfate has no appreciable hypotensive effect.

Veratrum Preparations

The agent used in the present series is a derivative of *veratrum viride*. In the past 2,000 years of medicine *veratrum* has been in and out of favor many times. It has always been considered an effective drug, but one whose effectiveness was matched or often overcome by its dangerous qualities. The nadir of its popularity was reached a few years ago when it was dropped from U.S.P. XII. In 1941 Goodman and Gilman⁵ stated: "The drug is practically obsolete today, and enjoys a deserved oblivion."⁵

Recently, purified preparations of *veratrum* have been made available. One of these, *alkavervir*,* was

selected for use in this study. This drug is an alkaloidal ester extract of *veratrum*, prepared by fractionation and standardized chemically and biologically. Data on *alkavervir* (*Veriloid*®) are summarized as follows:

1. *Hypotensive*. The hypotensive effect is achieved by generalized vasodilation, mediated through the central nervous system. The drug has neither a sympatholytic nor adrenergic blocking action. The patient is maintained in a state of circulatory equilibrium, but at a lowered arterial pressure.

2. *Cardiac*. Following *Veriloid* administration, Wilkins⁷ noted an increase in cardiac output and bradycardia. The latter is not causally related to the hypotension but is vagal in origin, and can be abolished by vagotomy or by giving atropine. Electrocardiographic changes consist of reversal of the strain pattern during *Veriloid*-induced hypotension. In view of the fact that Kauntze and co-workers⁶ used the drug in the therapy of congestive and hypertensive failure in adults, and it was given freely to patients already digitalized, it was anticipated that protective effect on the heart might be found—this in direct contrast to magnesium sulfate, which has a cardiac-depressant effect.

3. *Renal*. The renal bed shares in the generalized vasodilation which follows administration of the drug. This results in an initial decrease of renal blood flow, followed by a fairly rapid return to normal or above normal values. The urine output reflects this initial decrease; Goldman⁴ observed that a smaller volume of urine is produced during the period of hemodynamic adjustment to the lower pressure.

MATERIALS AND METHODS

Veriloid may be administered by mouth, intramuscularly or intravenously. Inasmuch as the patients are usually nauseated and may be vomiting, and since close control over initial dosage is desirable, intravenous administration is usually preferred. In the present series the patients were observed for from 6 to 12 hours after admittance; during this time symptoms, behavior and evidences of encephalopathic conditions were recorded. Baseline blood pressure readings were made, an electrocardiogram obtained and blood drawn for nonprotein nitrogen determination. Indications for the use of hypotensive agents were considered to be systolic pressure of 160 mm. of mercury and/or diastolic pressure of 100 mm. or more; or lower blood pressure levels if there was evidence of heart failure or cerebral symptoms.

The following regimen is suggested:

Dosage: *Veriloid* administration (intravenously)

**Veriloid*,® NNR, Riker Laboratory, Los Angeles.

consists of two phases, an initial rapid infusion followed by slow intravenous drip. Initially: 0.022 cc. of Veriloid solution per kilogram of body weight over a period of 20 minutes. This amount is diluted to a volume of 10 cc. with 5 per cent glucose solution. (For example, if the patient weighs 20 kg. then the initial dose is $0.022 \text{ cc.} \times 20 = 0.44 \text{ cc.}$ of Veriloid, diluted to 10 cc. in a 5 per cent glucose solution.)

(a) The injection should be made at the rate of 0.5 cc. of this diluted solution per minute for eight minutes (total of 4 cc.) with continuous observation of blood pressure.

(b) Wait two minutes.

(c) Continue at the rate of 0.5 cc. per minute for six more minutes, watching blood pressure closely. (The total given thus far is 7 cc.)

(d) Wait two minutes.

(e) Continue at the rate of 0.5 cc. per minute for six more minutes, watching blood pressure closely. This will exhaust the supply in the syringe. (Total 10 cc.) If, after a 15-minute interval, the blood pressure is not lowered to the desired level, repeat whatever part of a similar 10 cc. preparation is required to bring the blood pressure to the level desired. Always stop when a 20 mm. fall is observed, and wait until the blood pressure levels off before continuing.

Maintenance: Start slow intravenous infusion using 5 per cent or 10 per cent glucose as the diluent. Give 0.13 cc. Veriloid per kilogram of body weight, in total solution of 22 cc. per kilogram of body weight. Infuse at rate of 5 drops per 10 kg. of body weight per minute. (For example, with a 20 kg. patient, $0.13 \text{ cc. of Veriloid} \times 20 = 2.6 \text{ cc.}$ of Veriloid to be added to $20 \times 22 \text{ cc.} = 440 \text{ cc.}$ of a 5 per cent glucose solution given at rate of $2 \times 5 \text{ drops} = 10 \text{ drops per minute.}$)

Blood pressure must be taken and recorded every 15 minutes while the maintenance infusion is running. It may be set up to run 15 to 20 hours if necessary.

Further medication with Veriloid should be determined on the basis of subsequent episodes of hypertension. After the initial infusion and maintenance dosage the patient may "escape" from the effects of the drug, and the blood pressure climb to near the initial levels. A second maintenance infusion may then be used.

Overdosage results in extreme hypotension with eventual collapse, bradycardia and cardiac irregularities. These complications are rare, but to relieve them there must be at the bedside of each patient receiving the drug:

1. One ampule of ephedrine sulfate $2\frac{1}{2}$ per cent. Give 1 cc. (25 mg.) intramuscularly.

2. Atropine sulfate 1:1000. Give 0.43 mg. intramuscularly to overcome bradycardia.

RESULTS

Using the criteria and methods as outlined above, ten children were given Veriloid. A prompt hypotensive effect was observed, and a characteristic general pattern of response to Veriloid was noted in each instance.

It was found that the blood pressure could be reduced to a selected level, or to normal or subnormal levels, by changing the rate of the infusion. No attempt was made to produce normal or hypotensive levels, since a fall of only 20 or 30 mg. was often sufficient to relieve encephalopathic states and to reduce the hypertensive strain on the patient.

Three typical case histories follow:

CASE 1. A 12-year-old Mexican boy entered the hospital in a semicomatose condition. Three weeks before, he had apparently made uneventful recovery from scarlet fever, although he occasionally complained of persistent headache. Forty-eight hours before admission he began to vomit, and on the morning of entry had a convulsion. Intermittent convulsions lasted eight hours and were accompanied by cyanosis. Initial physical examination showed a disoriented, combative boy with moderate, generalized edema and blood pressure of 180/130 mm. of mercury. The heart was enlarged to percussion and on roentgen examination a widened cardiac shadow was seen. An electrocardiogram was within normal limits. The urine was grossly bloody, contained red blood cell casts, and gave a strongly positive reaction for albumin. The nonprotein nitrogen content of the blood was 113 mg. per 100 cc. During the first four hours on the ward the patient remained semiconscious and belligerent, and had periodic convulsions of a tonic-clonic pattern. Blood pressure stabilized at 170/120 mm. of mercury. At this time Veriloid was given intravenously, and 20 minutes later the patient became responsive and cooperative. The blood pressure was 140/100 mm. Two hours later the patient fell asleep, and the blood pressure at that time was 120/90 mm. During maintenance Veriloid therapy that was continued over a period of 12 hours, the blood pressure stabilized at 130/90 mm. of mercury. The following day the nonprotein nitrogen was 54 mg. per 100 cc. and the patient began to lose weight. Recovery was without incident, and two years after the illness, urinary findings and blood pressure were normal.

CASE 2. A 7-year-old Mexican boy entered the hospital with signs of acute cardiac failure. Two weeks before entry he had had an attack of acute pharyngitis, followed one week later by swelling of the face, abdomen and scrotum. Thirty-six hours before entry he became dyspneic, 12 hours later was orthopneic, and on the morning of admission was cyanotic. Upon initial examination, deep cyanosis,

generalized edema and orthopnea were noted. The blood pressure was 160/120 mm. of mercury. The patient seemed acutely uncomfortable. The heart was enlarged to percussion, and the heart rate ranged from 160 to 180. Conditions observed upon roentgen examination of the chest were consistent with pulmonary congestion. The electrocardiogram was grossly abnormal. Albumin, red blood cells and red blood casts were noted in the urine. The non-protein nitrogen content of the blood was 58 mg. per 100 cc.

Upon entry the patient was given digitalis and after six hours, during which time the blood pressure stabilized at 155/120 mm. of mercury, Veriloid was started intravenously. There was a rapid fall in blood pressure with leveling off at 100/80 mm. After nine hours Veriloid was discontinued. During the next four days edema subsided. No restrictions on fluid, sodium or diet were imposed during this period. The heart returned to normal size and recovery was uneventful.

CASE 3. A 4-year-old girl entered the hospital because of generalized edema. Two weeks before admission the child had received penicillin for a mild sore throat. Subsequently she had been well until four days before entry, when abdominal swelling was observed. Two days later severe shortness of breath developed. On initial examination the child seemed acutely ill and dyspneic. Blood pressure stabilized at 150/120 mm. of mercury during six hours of observation. There was abdominal distention with evidence that pressure on the diaphragm from below was compressing the chest. Films of the heart showed an enlarged cardiac silhouette and vascular shadows consistent with pulmonary engorgement. Gross hematuria was noted, and red blood cell casts were observed on microscopic examination of the urinary sediment. Non-protein nitrogen was 52 mg. per 100 cc. of blood. Veriloid administration was followed by a prompt drop of the blood pressure to 115/90 mm. of mercury. During the next eight hours the patient seemed more comfortable and the chest cleared. Grossly

abnormal urinary findings were observed for a period of ten days. Recovery thereafter was without incident.

DISCUSSION

It is not reasonable to assume that Veriloid or any other hypotensive agent now available effects more than a temporary reversal of hypertension. The blood pressure will again rise to high levels shortly after the drug is discontinued. But meanwhile a temporary reversal has been obtained, and this may be all that is needed. Furthermore, it should not be assumed that because a drug worked well and uniformly in ten children it constitutes an ideal agent. The variability of blood pressure both in health and disease is such that one cannot always be sure that the drug that is given and the blood pressure readings that follow are necessarily cause and effect. At present, from this limited series it seems reasonable to conclude only this: Veriloid deserves further clinical trial in the hypertensive phase of acute nephritis in childhood.

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REFERENCES

1. Butler, A. M., and Reyersbach, G. C.: Specific therapy in acute nephritis, *M. Clin. North America*, Boston, p. 1181, 1946.
2. Derow, H. A.: Management of acute glomerulonephritis, *New Eng. J. Med.*, 294:144-153, July 23, 1953.
3. Etteldorf, J. N., et al.: Renal function studies in pediatrics, *A.M.A. Am. J. Dis. Child.*, 83:301, 1952.
4. Goldman, R., and Frierson, H. R.: Effect of Veriloid upon renal function when administered in hypotensive doses to patients with arterial hypertension, *Am. J. Med.*, 14:168, 1953.
5. Goodman and Gilman: *The Pharmacological Basis of Therapeutics*, Philadelphia, McMillan, 1941, p. 575.
6. Kauntze, R., and Trounce, J.: Hypotensive action of Veriloid, *Lancet* 1:549, 1951; *Ibid*, 2:1002, 1951.
7. Wilkins, R. W., Freis, E. D., and Stanton, J. R.: Essential hypertension, *J.A.M.A.*, 140:361, 1949.



Therapy of Tinea Capitis

The Value of X-Ray Epilation

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THE ONLY KNOWN swift and sure cure for *Microsporum audouini* infection of the scalp and the only adequate barrier against spread from person to person, is x-ray epilation. Unless isolated, a child under long-term topical therapy can infect countless others before cure is achieved; and isolation is not practical, for no child in this enlightened era should be deprived of normal play with other children for months and sometimes years when there is a safe way to avoid it.

The Keinbock-Adamson technique of roentgen ray epilation has stood the test of time. Cipollaro³ estimated that 20,000 children have had epilation by this method since its inception half a century ago. Strauss and Kligman,⁸ who have made extensive studies of tinea capitis, stated that there is no valid evidence that epilation with the Keinbock-Adamson technique, if properly performed, leads to development of any undesirable cutaneous or neurologic sequelae. In 1948 Combes and Behrman⁵ reported use of the method in several thousand cases without any untoward permanent effects. Beare and Cheeseman¹ applied the method in treating 566 cases of tinea capitis due to *M. audouini*. At the time their report was made, they had observed 75 per cent of the patients for a reasonable length of time, and regrowth had occurred in all cases. Many other reports of the efficacy and safety of properly performed roentgen ray epilation are to be found in the literature.

The Keinbock-Adamson technique is of proven worth in the control of epidemics. It is probable that epidemics could be prevented if the first few children to acquire *M. audouini* infection in a community were treated by epilation. For example: In a city of 25,000 population on Long Island, where one case was discovered, eight more were found on examination of all the school children in the city.² Six children were given roentgen ray epilations and were cured in three to four weeks. The other three patients were treated topically because of minimal involvement or kerion formation. No new cases were reported during the following months. In contrast, topical treatments of all forms were the only therapy used in 900 cases in Ontario,

• Roentgen ray epilation, which is at present the most important single weapon against *M. audouini* infection of the scalp, should not be withheld except in special circumstances, from a child who has the disease. It can quickly cure the disease and halt spread from one child to another. Harmful sequelae and medicolegal complications can be averted by competent use of the method and simple precautions.

The Keinbock-Adamson technique of epilation can be recommended without hesitancy, provided it is carried out meticulously in every detail, and administered by an operator of suitable training and experience in roentgen therapy of the skin.

Canada, and after 18 months the cure rate was only 62 per cent.⁶ During an epidemic in New York City in 1950, Cipollaro and Brodey⁴ obtained a cure rate of 98 per cent of all treated cases in an average of six weeks, using the Keinbock-Adamson technique.

At Stanford University School of Medicine, and in the author's private practice, the technique has been used in a total of 78 cases since 1951, with no untoward results.

Despite the preponderance of favorable opinion among authorities, many physicians are hesitant to recommend roentgen ray epilation for treatment of *M. audouini* infection of the scalp. The reasons and a discussion of each follow:

1. *Fear of permanent alopecia.* When the Keinbock-Adamson technique is carried out meticulously by a skilled and fully qualified operator, permanent alopecia need not be feared. Most authorities consider 300-350 roentgens in air to be the minimum dose which will produce temporary epilation when the Keinbock-Adamson five-point technique is used. The number of roentgens necessary to produce permanent alopecia is not known, but the margin of safety between a dose causing temporary loss of hair and one causing permanent loss is considerable. Strauss and Kligman⁸ applied as many as 500 r to each of five focal points on the scalp by this method, and concluded that the dose necessary to produce permanent alopecia is above 1,000 tissue roentgens.

2. *Fear of brain damage.* In the performance of the technique under discussion, superficial therapy

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machines are used, with voltages lower than 100 kv, having a half-value layer of less than 1 mm. of aluminum. No filter is used. Under these conditions there can be no possibility of brain damage.

3. *Fear of medicolegal complications.* These have arisen because epilations have been attempted by physicians lacking the proper training and experience in roentgen therapy of the skin. It is true that there is little tolerance for error in the technique of roentgen ray epilation, but this can also be said of countless other medical and surgical procedures which physicians recommend daily with confidence.

Medicolegal complications have developed because an inexperienced operator has committed one or more of the following errors:

1. Over-exposure: This may come about through giving an epilating dose to the same area twice. A plotted diagram of the scalp should be made, and each treated area checked off as the operator works.

2. Using too heavy filtration. Unfiltered, conventional superficial radiation should be used.

3. Faulty timing of the treatment. A stop-watch should always be employed as a check on the x-ray timer.

4. Faulty positioning of the patient.

5. Lack of biologic calibration of the x-ray machine used. This is important in addition to the regular physical calibration.

6. Failure to discontinue all topical therapy at least ten days before epilation, resulting in complaints about scalp irritation which is not due to roentgen rays at all, but to the previously employed topical agents.

A careful history must be taken of each patient to make sure there has been no previous irradiation of the scalp within six months. If complete epilation is not accomplished by roentgen therapy, it may be repeated once, but not until at least six months after the first treatment. Also, if a child has scars on the scalp, it is wise as a precautionary measure to take photographs before epilation.

Telling the parents what to expect after epilation helps to give them confidence in the procedure and in the physician and goes a long way toward averting medicolegal complications.

Roentgen ray epilation is contraindicated in:

1. Tinea capitis due to *Microsporum lanosum* (acquired from animals) except when such infection has existed for months in a *noninflammatory* form.

2. The presence of kerion formation, or any inflammatory reaction during the course of infection due either to *M. audouini* or *M. lanosum*.

3. Cases of tinea capitis in children under three years of age, because of their inability to remain

motionless during treatment. Sedation or light anesthesia may be used at the physician's discretion in the individual case where epilation is necessary.

For *M. audouini* infections, roentgen ray epilation is always advisable under the following circumstances:

1. In cases showing no improvement under topical therapy in two months.

2. In cases where the infection is spreading—where a single lesion is enlarging, or new ones are forming elsewhere on the scalp.

3. For the control of epidemics in a community, or to prevent infection of other siblings in the individual family.

The Keinbock-Adamson technique of roentgen ray epilation has been fully described in the literature.⁸ Briefly, it consists of marking five focal points on the scalp, and giving each point an epilating dose of from 300 to 350 r, unfiltered, with a half-value layer of 0.7 mm. of aluminum. The exact dosage in each case depends on the age of the child treated, the size and shape of his head, his coloring, and the results of biologic calibration of the x-ray machine used. The five points are irradiated at one sitting. The intermediary areas receive more irradiation than the focal points. This "overlapping" is calculated and allowed for. It is not dangerous and will not cause permanent alopecia if all phases of the technique are carried out accurately.

Roentgen ray epilation demands careful clinical follow-up of the patient. The hair begins to loosen usually on the sixteenth or seventeenth day following the treatment. At this time, the parents are instructed to remove loose hair two or three times daily by pressing on and then removing strips of adhesive tape. This helps to prevent scattering of infected hairs. A day or so later, usually on the eighteenth or nineteenth day, an adhesive cap is applied at night and removed in the physician's office the following morning. Since roentgen rays do not kill the fungus, every attempt is made to remove all strands of hair by the twenty-first day. Many infected stubs will still remain, and they should be manually removed by the thirtieth day. This can be done without pain. If they are allowed to remain longer the follicles will tighten and make removing them more difficult. If not removed, they may infect the new growth of hair.

When defluvium is complete, daily shampooing and application of a mild fungicide, such as 1 per cent salicylic acid and 3 per cent ammoniated mercury in a petrolatum base, are in order. Usually, after two or three weeks of this regimen, no fluorescence or other evidence of infection can be found. The child cannot, however, be discharged

from treatment until no fluorescence is seen in either of two examinations under a Wood's light, given two weeks apart, and a culture made from scrapings of the scalp is negative for fungi.

Regrowth of the hair begins in one to two months and is nearly always vigorous. The hair grows back first on the focal points of treatment, which have received the smallest amount of radiation. In the "overlapping" areas, which have received more, the hair is a little slower to come in. It should be explained in advance to parents that at first the growth may look patchy but later will be uniform. In boys, regrowth is complete in two to three months from the date of defluvium. The rate of growth is the same in girls, but complete restoration of appearance, from a cosmetic viewpoint, may take five or six months.

Tinea capitis does not endanger the physical health of its victims, but there may be adverse psychologic effects in a sensitive child if the disease persists a long time and sets him apart from his fellows. Painful periodic manual depilation of hairs by his mother does not seem like an act of love to a small child who cannot comprehend the reason. Constant parental efforts to impose necessary sani-

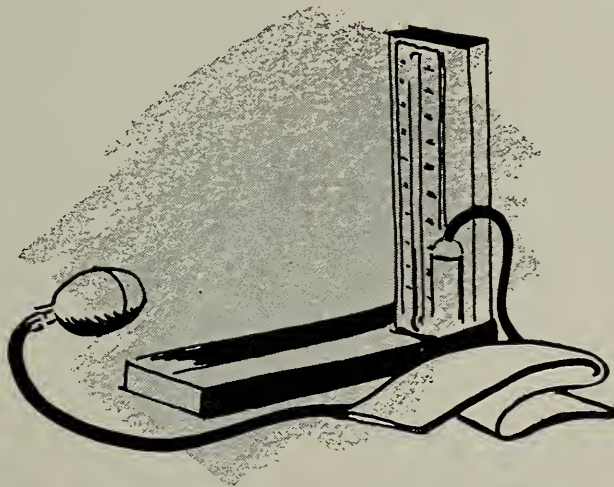
tary precautions on children during long term topical therapy can cause an atmosphere of tension in the home.

Parents usually readily accept roentgen ray epilation once they understand it. Particularly if they have worked tirelessly and sometimes fruitlessly to avoid the spread of the infection to other siblings, they can be much relieved to know the danger will be passed in a few weeks.

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REFERENCES

1. Beare, J. M., and Cheeseman, E. A.: Tinea capitis; a review of 1,004 cases, *Brit. J. Dermat.*, 63:165-186, May 1951.
2. Brodey, A.: Personal communication.
3. Cipollaro, A. C.: Personal communication.
4. Cipollaro, A. C., and Brodey, A.: The control of tinea capitis, *N. Y. State J. Med.*, 50:1931-1934, Aug. 15, 1950.
5. Combes, F. C., and Behrman, H. T.: Technic and problems of roentgen ray epilation, *Arch. Dermat. & Syph.*, 57: 74-89, Jan. 1948.
6. Lewis, G. M.: Personal communication.
7. MacKee, G. M., and Cipollaro, A. C.: X-rays and Radium in the Treatment of Diseases of the Skin, Philadelphia, Lea & Febiger, 1946.
8. Strauss, J. S., and Kligman, A.: Distribution of skin doses over scalp in therapy of tinea capitis with superficial x-rays, *Arch. Dermat. & Syph.*, 69:331-341, March 1954.



CASE REPORTS

Multiple Myeloma

A Case Diagnosed Without X-ray Evidence of Bone Lesions

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MULTIPLE MYELOMA is a disease which has fascinated clinicians since 1845 when Dr. Henry Bence-Jones identified the protein in the urine of a patient referred to him by Sir James Watson. It is a disease which often escapes detection in its early stages because many clinicians consider roentgenographically observable changes in the bones a necessary criterion for the diagnosis.

Wallerstein² in 1951 brought attention to this subject with a comprehensive review of the literature and three case reports.

The following case is presented as one in which the diagnosis was made ten months before any lesions demonstrable by x-ray examination were present.

REPORT OF A CASE

The patient, a 50-year-old man, an oil company executive, was observed at home on September 6, 1950, for excruciating low backache radiating to the left buttock.

The patient had had low backache first in April, 1950. At that time a chiropractor made a series of "adjustments." Then the pain was worse. The patient stopped subjecting himself to the treatment and gradually the pain abated.

In the present illness he was unable to move or get out of bed. Morphine and meperidine were given, and the following day the patient was admitted to Community Hospital, Long Beach, where complete roentgen studies of the spine revealed no abnormalities. Orthopedic consultation was obtained and a diagnosis of low back sprain was made. The patient was discharged on the following day and received a series of physiotherapy treatments with improvement.

On September 29, 1950, he was readmitted to the hospital with excruciating backache. Large doses of meperidine were required for relief. X-ray studies of the lumbosacral spine were repeated and again no abnormality was observed. The only physical abnormality observed was paravertebral muscle spasm in the lumbar region. The straight leg raising test

showed pronounced impairment on the left. Exercises for the lower back were prescribed and a back brace was applied. The patient improved and was discharged October 5, 1950.

The pain soon recurred and became excruciating, and on November 29, 1950 the patient was readmitted. Myelograms were done and were reported as showing no abnormality. The patient began to have pains in the ribs. Examination of a specimen of sternal marrow revealed 26 per cent immature plasma cells. The serum globulin content was elevated. The urine was negative for Bence-Jones protein. X-ray studies of the skull, thorax, complete spine, thighs, legs and pelvis were carried out and no abnormality was noted. Even so, the diagnosis of multiple myeloma was considered established. A series of x-ray treatments to the lower spine and pelvis was given. The patient had considerable improvement and returned to work.

On October 18, 1951, the patient fell from a ladder and fractured the right 6th rib. No evidence of osteolytic lesion was found at the site of the fracture. Adhesive tape was applied for immobilization and the patient returned to work two weeks later. However, he began to have pain again in the back and ribs and on December 20, 1951, another x-ray study of the bones was done. Pathologic fracture of the left 4th, 5th, 6th and 7th ribs was noted. There was compression of the bodies of the vertebrae from T4 to T11. Mottled bone absorption of the wing of the right ilium also was noted. Another series of x-ray treatments was given and the patient was discharged on January 4, 1952, and returned to work shortly thereafter wearing a back brace. He got along fairly well and codeine was used for control of pains.

In June, 1954, nausea, anorexia and anemia, as well as generalized severe bone pains began to develop. The patient was given urethane, as much as 1.2 gm. three times a day, but without much relief, and finally large doses of meperidine were required. Multiple transfusions were given. In August 1954 a spontaneous fracture of the left femur occurred and the patient then was bedridden until he died on September 18, 1954, four years and five months after the onset of the original symptoms.

In this case, suspicion of multiple myeloma was aroused when the skeletal pain of the patient seemed out of proportion to the conditions observed roentgenographically. Suspicion was further aroused

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when serum protein was found to be elevated. The diagnosis was then definitely established by bone marrow studies.

Medical literature contains very few reports of multiple myeloma diagnosed without lesions in the bones demonstrable by x-ray. However, since undoubtedly there are many cases in which the disease is present but radiographic appearance is normal, it should be emphasized that complete bone surveys should be done when there are other factors to arouse suspicion. It should be borne in mind also that there may be bone lesions far removed from the area in which the pain is localized, which may be demonstrated by proper x-ray studies.

Determination of the total serum protein may be used as a good screening test for myeloma in cases

in which there is severe bone pain but either equivocal or normal roentgenographic appearance. Bayed and Heck¹ in a report on 83 cases at the Mayo Clinic noted that 73 per cent of the patients had elevated serum proteins. This was one of the most consistently positive of all the laboratory tests performed.

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REFERENCES

1. Bayrd, Edwin D., and Heck, Frank J.: Multiple myeloma, a review of eighty-three proved cases, *J.A.M.A.*, 133:147-157, Jan. 18, 1947.
2. Wallerstein, Robert S.: Multiple myeloma without demonstrable bone lesions, *Am. J. Med.*, 10:325-333, March 1951.

Arachnodactyly with Associated Healed Dissecting Aneurysm

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ARACHNODACTYLY (Marfan's syndrome) is a rare hereditary disease characterized by multiple defects involving the mesodermal tissues of the body. Typically, persons who have the disease are tall and have unusually long extremities, especially the fingers and toes. A deficiency of subcutaneous fat and poor development of musculature causes an appearance of emaciation. Deformities of the spine, chest and feet are common. Bilateral dislocation of the lens of the eye and tremulousness of the iris occur in about half the cases. Glasses are frequently worn for correction of myopia.⁶

Serious lesions of the cardiovascular system have been responsible for the decreased longevity in the majority of cases of arachnodactyly coming to autopsy. Angina pectoris, dyspnea on exertion and orthopnea are frequent symptoms. Cardiac enlargement, aneurysm of the aorta and heart murmurs, especially the to-and-fro murmur of aortic insufficiency, are common clinical findings.

Including the nine cases tabulated by Thomas and co-workers¹¹ to 1952, the two cases of McKusick,⁸ and single cases reported by Bigger,¹ Goyette and Palmer,⁷ and Pygott,¹⁰ and the present case, there is a total of 15 autopsied cases of arachnodactyly in association with dissecting aneurysm of the aorta reported in some detail in English literature. In 10 of these cases there was also aneurysmal dilatation of the aorta, usually the ascending portion. Two cases with intimal tears but without significant intramural dissection have also been reported.⁹

In the following case, the patient died with symptoms and signs of congestive heart failure, and an incidental "healed" dissecting aneurysm of the aorta was observed at autopsy.

CASE REPORT

A white man 32 years of age entered the hospital August 21, 1954, complaining of shortness of breath and precordial pain of three months' duration. A month previously digitalis had been given by a physician. Three days before admission, anorexia, nausea and frequent vomiting developed.

At 13 years of age the patient had reached his maximum height of 6 feet 4 inches. Severe physical activity had frequently produced excessive fatigue for several days. He had always had a severe funnel chest deformity and wore glasses to correct myopia. He had been paraplegic for three years following compression fracture of the lumbar vertebrae in an auto accident.

Upon examination pronounced dyspnea was noted. The patient was asthenic and had long tapering digits. The blood pressure in the right arm was 100/40 mm. of mercury and in the left arm 120/50. Respirations were 30 per minute, the temperature 98.4° F. and body weight 170 pounds. Severe pectus excavatum deformity of the sternum was noted. The pupils were round, regular and equal. The apex impulse of the heart was visible as a diffuse thrust in the sixth interspace at the anterior axillary line. There was a systolic and diastolic (to-and-fro) murmur at the base of the heart, and a questionable diastolic murmur at the apex. Dullness to percussion over the base of the right lung and scattered moist rales were noted. The abdomen was soft with slight tenderness over the lower margin of the liver. There was paresis of the lower extremities and bilateral atrophy of thigh, leg and foot muscles and an absence of deep tendon reflexes. Reflexes in the upper extremities were weak.

The diagnosis upon admittance was rheumatic heart disease with aortic insufficiency and possible mitral stenosis. Therapy included rest in bed, a low sodium diet and a maintenance dose of 0.2 mg. digitoxin daily. An electrocardiogram showed sinus tachycardia with right axis deviation. The P-R

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Figure 1.—Arrow points to the inner lumen formed by dissection of the aorta. The aneurysmal dilatation of the proximal aorta is obscured by a shadow.

interval was 0.18 second and the QRS 0.10 second. There was a slight depression of the RST segment in leads 2, 3 and AVF. The R-wave was tiny to absent in leads V-4 to V-6. These findings were interpreted as "abnormal electrocardiogram, sinus tachycardia, right-axis deviation, vertical heart with marked clockwise rotation."

An x-ray film of the chest showed cardiac enlargement and a moderate right pleural effusion. A plain film of the abdomen showed healed compression fracture of the second lumbar vertebra and three laminated calculi in the urinary bladder. The hemoglobin content was 14.2 gm. per 100 cc. of blood and leukocytes numbered 6,100 per cu. mm. with a normal differential. The result of a Wassermann test was negative for syphilis.

The patient continued to complain of severe epigastric pain, and dyspnea increased. He died seven days after admission. At autopsy it was noted that the heart was dilated and weighed 890 gm., due to hypertrophy. The aortic valve ring was dilated to a circumference of 10 cm. with a cord-like thickening of the free margins of the leaflets but no widening of the commissures. There was a fusiform aneurysmal dilatation of the proximal 6 cm. of the ascending aorta to a maximum diameter of 5.3 cm. At the upper margin of this aneurysm, 6 cm. above the aortic valve, the aorta suddenly became double-barreled

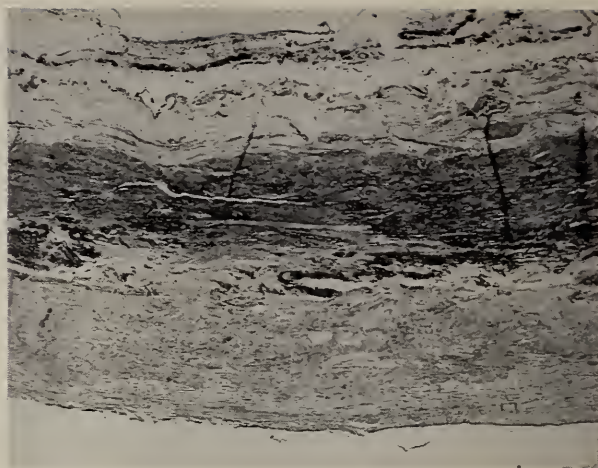


Figure 2.—Low-power microphotograph of the wall of the aorta (Verhoff stain), showing pronounced fragmentation of elastica.

(Figure 1). The smaller lumen, representing the original lumen, measured 1.5 cm. in diameter and had a smooth intimal lining. The dissecting aneurysm, 4.8 cm. in diameter, was completely endothelialized with atheromatous plaques on its inner surface. The intimal tear encircled the aortic wall except for a strip 1 cm. wide posteriorly. String-like adhesions bound the smaller tube to the larger. Dissection extended upward as far as the isthmus of the aorta and involved the proximal two or three centimeters of the great vessels arising from the arch.

Upon histologic study of the fusiform aneurysm of the ascending aorta, severe degenerative changes within the media were observed. Elastic tissue was almost completely absent from the inner half and was badly fragmented in the outer half (Figure 2). Irregular faults formed by defects in smooth muscle and elastic tissue contained a hyalin material and occasionally small basophilic staining cysts. The changes resembled the lesion called "medionecrosis" by Erdheim.⁴

In a section through the ascending aorta at the beginning of the dissecting aneurysm a hyalin fault was noted in the midportion of the media, through which dissection had occurred. The muscle and elastic tissue at this level were well preserved and the vasa vasorum were normal.

DISCUSSION

A healed dissecting aneurysm was an incidental finding in the case reported, as death was due to congestive heart failure brought about by aortic insufficiency. The aortic insufficiency was apparently a part of the syndrome of arachnodactyly rather than dissection, as dissection did not involve the proximal dilated segment of the aorta.

There was no history of an acute episode from which to date the onset of dissection, but the presence of endothelialization and atheromatous changes in

the dissected segment indicated that the process was of long duration.

Survival following an acute episode of dissecting aneurysm of the aorta is not rare. In careful perusal of the English literature since 1933, reports of 425 cases in which survival time following dissection was indicated were found. In 26 per cent of cases the survival time was more than two weeks; the longest survival, in a case reported by Cassidy and Pinniger,³ was nine years. Development of a "chronic" dissecting aneurysm in arachnodactyly occurred in three previously reported cases.^{1,2,5}

In the 13 cases of dissecting aneurysm occurring in patients with arachnodactyly, the patients were in a relatively young age group; the average age was 29 years, or approximately 20 years less than the usual age for this lesion. Hypertension, which is generally considered an important predisposing and exciting cause of dissection, was absent in most instances. Degenerative changes within the media of a type similar to those described by Erdheim were a consistent finding, and these changes appeared to be precursors of dissection. The medial lesion presumably develops during the shortened life span of the patients, for aortic disease has not been observed in autopsy studies of infants with arachnodactyly.

SUMMARY

A 32-year-old man with arachnodactyly died three months after the onset of congestive heart failure. At autopsy, an incidental healed dissecting aneurysm of the ascending aorta was noted.

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REFERENCES

1. Bigger, I. A.: The treatment of pectus excavatum or funnel chest, *Am. Surgeon*, 18:1071-1081, Nov. 1952.
2. Cabot Case No. 36351, Marfan's syndrome, *New England J. Med.* 243:346-349, Aug. 31, 1950.
3. Cassidy, M., and Pinniger, J.: Healed dissecting aneurysm, *Brit. Heart J.* 8:130-139, 1946.
4. Erdheim, J.: Medionecrosis aortae idiopathica, *Virchows Arch. f. path. Anat.* 273:454-479, 1929.
5. Etter, L. E., and Glover, L. P.: Arachnodactyly complicated by dislocated lens and death from rupture of dissecting aneurysm of the aorta, *J.A.M.A.* 123:88-89, Sept. 11, 1943.
6. Fletcher, H. P., and Southworth, H.: Arachnodactyly and its medical complications, *Arch. Int. Med.* 61:693-703, May 1938.
7. Goyette, E. M., and Palmer, P. W.: Cardiovascular lesions in arachnodactyly, *Circulation*. 7:373-379, Mar. 1953.
8. McKusick, V. A.: The cardiovascular aspects of Marfan's syndrome: A heritable disorder of connective tissue, *Circulation*, 11:321-342, March 1955.
9. Moses, M. F.: Aortic aneurysm associated with arachnodactyly, *Brit. M. J.* 2:81-84, July, 1951.
10. Pygott, F.: Arachnodactyly (Marfan's syndrome) with a report of two cases, *Brit. J. Radiol.* 28:26-29, Jan. 1955.
11. Thomas, J., Brothers, G. B., Anderson, R. S., and Cuff, J. R.: Marfan's syndrome: A report of three cases with aneurysm of the aorta, *Am. J. Med.* 12:613-618, May 1952.

Allergic Sensitivity to Digitalis But Not to Squills

DEAN C. DENMAN, M.D., Whittier

A REVIEW OF THE LITERATURE indicates that allergic reaction to digitalis is very unusual. White,⁶ noted that "allergy to foxglove is excessively rare"; and Cohen and Brodsky² in 1940, reviewed the scanty literature and reported a case in which urticaria and angioneurotic edema developed after the ingestion of tincture of digitalis, Digilanid[®] and Urganin.[®] Wolfe and Geiger⁷ in 1953 reported upon a patient who had urticarial lesions following successive administration of digitalis leaf, digitoxin, Digoxin,[®] lanatoside C and Urganin. They referred to reports in the literature on digitalis eosinophilia.^{3,4} Becker and Obermayer¹ made note of a type of reaction due to sensitivity to digitalis—"erythema, morbilliform or scarlatiniform." Urback and Gottlieb⁵ presented an illustration of dermatitis of the forearms due to digitalis.

The following case is believed to be another example of allergic reaction to digitalis, but not to squills.

CASE REPORT

A 53-year-old housewife was first observed in April, 1951, because of shortness of breath, orthopnea and fatigue of eight months' duration. She had been aware of puffiness of the face, hands and feet for one week. There was no history of rheumatic fever. Another physician had diagnosed arterial hypertension about a year previously and had treated the patient for high blood pressure and nervousness. There was no history of allergic sensitivity to pollens, foods or drugs. The patient had one child living and well. Upon physical examination, moderate pallor of the skin was noted, and there was obvious dyspnea and orthopnea. The temperature was 98.6° F., the pulse rate 96 and the blood pressure 158/110 mm. of mercury. The peripheral veins were distended, and there was swelling of the eyelids and face, and pitting edema of the ankles and feet. Grade 3 enlargement of the heart to the left was noted, and there was a grade 4 systolic murmur at the apex which was transmitted to the left axilla and to the back. The rhythm was normal. There was dullness on percussion at both lung bases, and moist rales were heard over these areas. The edge of the liver was palpable 5 centimeters below the right costal margin and was tender.

The electrocardiographic pattern was that of left ventricular hypertrophy and anterolateral ventricular wall ischemia. Fluoroscopic examination confirmed the findings of left ventricular enlargement and pulmonary congestion. Urinalysis showed specific gravity of 1.005, pH 5.5, no albumin and no sugar, the sediment contained 30 to 50 leukocytes per high power field, and no casts.

Erythrocytes numbered 4,600,000 per cu. mm. of blood. Hemoglobin content was 14.3 gm. per 100 cc.

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and the color index was 0.91. Leukocytes numbered 7,200 per cu. mm.—74 per cent segmented, 1 per cent basophils, 20 per cent lymphocytes and 5 per cent monocytes. A stained smear appeared normal. The sedimentation rate (Wintrobe) was 8 mm. in one hour.

A diagnosis of hypertensive heart disease with congestive failure was made. Digitoxin, 1.2 mg. was given, and then a maintenance dose of 0.1 mg. daily. In addition a regimen of low salt diet and administration of ammonium chloride and mercurial diuretics was started. The only other medications received by the patient were phenobarbital and multiple vitamin capsules. (In June, 1952, Apresoline® was given, 25 mg. four times daily, in an attempt to lower the diastolic blood pressure. After a short trial this was stopped because of intractable headache.)

The response to the foregoing regimen was excellent, with relief from dyspnea and edema and a reduction of 10 pounds in body weight. Progress was satisfactory until September 8, 1952, when suddenly a generalized erythematous morbilliform rash developed. It was most intense over the right side of the thorax and the exposed areas of the arms and the V of the neck.

The patient complained of severe itching. Phenobarbital was discontinued and when the condition did not improve a dermatologist was consulted. After the usual measures did not give relief, all medication, including digitalis, was stopped and the patient was instructed to follow a low sodium diet meticulously. Corticotropin (ACTH) then was given intramuscularly, 40 mg. daily for two days, and the dermal eruption quickly cleared.

A week later digitoxin was started again, and within a matter of hours the eruption flared violently. Again the drug was stopped and the skin cleared in about a week. Following a rest period of another week a test dose of 0.5 mg. of gitalin was given by mouth. Again, within 12 hours, the rash returned. Another two weeks was spent clearing the skin, and then a single dose of Digilanid® was given and again a flaring of the erythematous morbilliform rash followed. It was then decided to try a different family of cardiotonic drugs. After another period of two weeks during which the skin again became clear, the patient was given a squill derivative, Scillaren® 0.8 mg. daily for one week, and as there was no dermal eruption the dose was increased until a full therapeutic effect was obtained. Scillaren was given thereafter and in 20 months of observation there was no return of dermatitis.

DISCUSSION

It is interesting that squills did not produce a flare-up of the patient's dermatitis even though it is closely related to digitalis glycosides. Both contain the cyclopentenophenanthrene nucleus. Cohen and Brodsky² and Wolfe and Geiger⁷ noted that the patients they reported upon were sensitive to the

squill family of cardiotonic drugs as well as to members of the digitalis family.

Of interest also is the predilection of the rash for the exposed areas of the arms and the V of the neck in this patient. Photosensitivity seems to have been a factor. No mention was made of this phenomenon in the published reports of other observers.

SUMMARY AND CONCLUSION

A case of allergic sensitivity to digitalis developing after 29 months of ingestion of digitoxin is presented. Sensitivity was manifested by a pruritic erythematous rash which was brought about also by other members of the digitalis family of drugs. When Scillaren®, a squills preparation, was given, the eruption did not occur and the patient thereafter was successfully maintained by ingestion of that drug.

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REFERENCES

1. Becker, S. W., and Obermayer, M. E.: *Modern Dermatology and Syphilology*, 2d Edition, page 170, J. P. Lippincott Co., Philadelphia, 1947.
2. Cohen, R. V., and Brodsky, M. R.: Allergy to digitalis, *Allergy*, 12:69-71, Nov. 1940.
3. Romano, J., and Geiger, A. J.: Digitalis eosinophilia, *Am. Heart J.*, 11:742-747, June 1936.
4. Smith, A. E., and Brusur, S. R.: Eosinophilia due to administration of digitalis, *Am. Heart J.*, 7:182-188, Feb. 1931.
5. Urbach, E., and Gottlieb, M.: *Allergy*, 2d edition, page 319, Grune & Stratton, Inc., New York, 1946.
6. White, Paul D.: *Heart Disease*, 3rd edition, page 772, The Macmillan Company, New York, 1947.
7. Wolfe, L. S., and Geiger, A. J.: Urticaria due to drugs of the digitalis series, *N. J. Med.*, 248:148-149, Jan. 22, 1953.

Solitary Nonparasitic Cyst of the Liver

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USUALLY, CYSTS OF THE LIVER are come upon unexpectedly during operation and pose a problem in surgical management. There are reports of approximately 200 cases of hepatic cysts in the literature, and undoubtedly many small asymptomatic cysts are never diagnosed. In 20,000 consecutive autopsies done at the Philadelphia General Hospital, Eliason and Smith² observed 28 cases of single cysts of the liver, none of which had been diagnosed when the patient was living.

The etiology of hepatic cysts is obscure. A commonly accepted classification is: (1) blood and degenerated cysts; (2) dermoid cysts; (3) lymphatic cysts; (4) endothelial cysts; (5) retention cysts; (6) proliferative cysts.

Dermoid and degenerated cysts are readily recognizable and are accepted as distinct entities. Cysts due to obstruction or congenital dilation of lymphatic nodes—the lymphangiomas—and endothelial cysts, which are lined with ciliated epi-

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thelium, are readily recognized by pathologists. They are extremely rare.

The most commonly observed hepatic cysts are retention cysts. They may be solitary or multiple. Pathology studies by Moschowitz⁵ indicated that they are of congenital nature and that they derive from aberrant bile ducts as a result of obstruction or inflammatory hyperplasia of the ducts.

These cysts vary in size from a few centimeters to large enough to fill the upper abdomen. Ochsner⁶ cited a case in which the cyst held four gallons of fluid.

Small cysts often are associated with large cysts. It has been postulated that solitary cysts are actually a coalescence of several small cysts and that a polycystic state and the presence of a solitary cyst are different stages in the process.

Hepatic cysts may rise from any portion of the organ, but usually from the undersurface of the right lobe. They may be intrahepatic or pedunculated, unilocular or multilocular. The walls are quite thin, varying from 0.5 mm. to 6.0 mm. and they have been described as made up of three layers, an outer layer of dense collagenous fibers, a central layer of loose areolar tissue containing blood vessels and an inner layer of multilayered columnar cells. Islands of liver cells are found compressed in the wall.

The cysts are filled with a liquid varying from clear, colorless to yellow or brown and in consistency varying from thin to quite viscid. The fluid contains albumin, and it may contain cholesterol, mucin and occasionally bile.

Solitary nonparasitic liver cysts have been reported in all age groups. The incidence in females is four times as great as in males. Twenty-five cases have been reported in children under 13 years of age.

Clinical Features

There are no symptoms referable to the cyst *per se*. Symptoms arise as a result of complications. Cysts of small size are asymptomatic but as they increase in size they press on neighboring structures, causing vague discomfort or symptoms of intermittent obstruction of the bile ducts, pylorus or small bowel. Rupture of a cyst (or torsion if it is pedunculated) may bring about acute symptoms of intraabdominal catastrophe. Infection or hemorrhage may occur in the cyst.

If there is a palpable mass in the right upper quadrant of the abdomen, which moves on respiration and has been present for some time without very severe symptoms, hepatic cyst should be suspected. X-ray films are of some help, especially if the cyst is large, for it may push the colon caudad and the stomach and duodenum to the left.

Differential Diagnosis

Of great importance is the differentiation of nonparasitic from parasitic cyst. Although echinococic cyst is a rarity in this country, it should be kept in mind in light of the increasing world travel and

the stationing of large numbers of military personnel abroad.

Castorina and Talia¹ reported three cases of echinococic cyst in children. They increased in size more rapidly and caused more symptoms than do nonparasitic cysts. Positive complement fixation and precipitin reaction serves to distinguish the echinococic cyst. If a cyst is found at operation, a small amount of the fluid should be drawn with care and examined by a pathologist to determine whether or not it contains scoleces.

Differentiation from polycystic disease before operation is difficult but in the reported cases polycystic liver was often associated with polycystic kidneys, whereas with solitary hepatic cysts the kidneys were normal.

Tests of liver function tend to show dysfunction in the case of polycystosis and normal function in the presence of solitary cyst. Kidney studies should be done, for patients with renal polycystosis do not tolerate extensive operation well.

Nonparasitic cysts have low internal tension and parasitic cysts a high tension, which may help in differentiation upon surgical exposure.

Treatment

Various means of dealing with solitary nonparasitic hepatic cysts have been reported—partial excision, attempt at complete enucleation, marsupialization externally and to the stomach.⁴ Complete enucleation is very difficult because of the adjacent structures in the porta hepatis and because the large raw surface that is left entails risk of severe hemorrhage. The mortality rate with this method is 10 to 15 per cent.

Marsupialization externally is obviously unsatisfactory. Also marsupialization to the intestinal tract seems unnecessary, as may be noted in the following report of a case.

REPORT OF A CASE

A 65-year-old white woman had pain in the left groin and swelling in the upper right quadrant of the abdomen. The swelling had been present for about 20 years and enlargement had been so gradual that it was scarcely noticeable. There was no complaint of indigestion, pain or discomfort other than a feeling of heaviness in the upper abdomen. There was no dysuria. The patient had never been operated upon.

Upon physical examination it was noted that the patient was almost emaciated. There was no enlargement of the thyroid gland or of cervical nodes. The chest was normal in size and shape and the heart normal to percussion and auscultation. The blood pressure was 140/80 mm. of mercury. There was no increase of vascular markings on the abdomen. A large mass was palpated in the right upper quadrant of the abdomen extending from the umbilicus to the chest wall and just to the left of the midline. It was smooth in outline, compressible, nontender, and moved with respiration.

In roentgenograms of the abdomen an ill-defined mass approximately 22 cm. in diameter was observed. It occupied the entire right upper quadrant and extended to the left of the midline laterally and to the iliac crest inferiorly. The mass displaced the hepatic flexure and the transverse colon inferiorly and the stomach to the left.

In barium studies of the upper gastrointestinal tract the esophagus appeared normal. The stomach, of the long "J" type, was displaced to the left and there was no evidence of intrinsic gastric disease. The duodenal bulb filled well but was compressed and displaced anteriorly and to the left of the midline. All of the small bowel visualized was displaced inferiorly and to the left. In cholecystograms the gallbladder was observed to be functioning but was displaced to the extreme right flank.

The following possibilities were considered: Mesenteric cyst, cyst of the head of the pancreas, retroperitoneal cyst and cyst of the liver.

The abdomen was opened through a right rectus muscle splitting incision. A large thin-walled cyst was exposed. It was located on the inferior surface of the right lobe of the liver. The gallbladder was located in the right iliac fossa and the cystic duct was intimately connected with the wall of the cyst and was markedly elongated. No other cysts of the liver were observed. The kidneys, carefully examined, appeared to be normal.

The cyst did not appear to be under undue tension. A small needle was inserted into the cyst and about 10 cc. of fluid withdrawn, care being taken not to spill any. The fluid was clear and colorless. It was reported negative for scoleces. By suction through a large needle, the cyst was emptied of 2 liters of fluid. The cyst, which was thin-walled, was attached to about half the undersurface of the right lobe of the liver. The location of the gallbladder and intimate location of the cystic duct with the cyst required removal of the gallbladder. This was done by elevating the collapsed cyst, identifying the structures in the portis and ligating the cystic duct and artery in the usual manner.

The area of attachment to the liver was so extensive that it was thought unwise to attempt to peel it free entirely. Therefore, the extrahepatic portion of the cyst was excised at the juncture with the liver. This left a thin cut edge in which the active bleeding vessels were ligated, and the entire edge then was sewed with a continuous over-and-over chromatic catgut suture. This left the undersurface of the liver covered with the remainder of the smooth cyst wall, giving it the appearance of almost normal liver covered with peritoneum. The abdomen was then closed in layers. No drains were used. The patient was afebrile and there was no evidence of intraperitoneal fluid. She was discharged on the sixth postoperative day.

The pathological report follows:

"The cyst was lined with an interrupted single layer of cuboidal epithelium. The cyst wall was composed of vascular, richly collagenous, fibrous

connective tissue, infiltrated by only occasional mononuclear inflammatory cells. External to the cyst wall was a layer of hepatic parenchyma covered by a delicate nonthickened capsule. Therefore, the cystic structure was actually situated in the liver parenchyma proper. In the liver tissue in the cyst wall there was irregular, diffuse fibroplasia which separated small islands of hepatic cells and in which there were scattered bile ducts. Many of those ducts were dilated to varying extent and their lumina appeared empty. The extensive fibrous stroma within the subcapsular liver tissue contained a patchy infiltrate of mononuclear inflammatory cells. There was no evidence of bile stasis in the subcapsular liver parenchyma, and no evidence of bile production. Neoplasia was absent.

"Diagnosis: Large epithelial cyst in liver, probably a developmental malformation."

DISCUSSION

No evidence of recurrence of the cyst or of fluid in the abdomen in the present case was noted in a nine-month period of observation. Postoperative x-ray films of the upper abdomen showed the stomach and intestines in normal position and the liver shadow normal in shape.

Johnson³ carried out a procedure similar to that carried out in the present case. The cyst, which was located in the right lobe, inferior surface, was smaller and it was filled with a thick, dark brown fluid. The extrahepatic portion was excised and a drain placed into the area. Recovery was uneventful.

To obviate the previously mentioned difficulties of complete excision, marsupialization to the external surface and to the stomach and intestines has been tried. In some of the reports in the literature, solitary hepatic cysts were compared to cysts of the pancreas. However, pancreatic cysts pose an entirely different problem, for the intensely corrosive pancreatic secretion is a factor.

SUMMARY

A large solitary cyst of the liver was treated by excision of the extrahepatic portion, leaving the portion next to the liver as a covering. Nine months later there was no evidence of recurrence of the cyst.

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REFERENCES

1. Castorina, G., and Talia, F.: Echinococcal cysts of the liver in early infancy, *Il lattante*, 2:261, April 1931.
2. Eliason, E. L., and Smith, D. C.: Solitary nonparasitic cyst of the liver, *Clinics*, 3:607, 1944.
3. Johnson, J. R.: Personal communication.
4. Manheimer, L. H.: Solitary nonparasitic cyst of the liver, *Ann. Surg.*, 137:410, 1953.
5. Moschowitz, E.: Nonparasitic cysts of the liver, with a study of aberrant bile ducts, *Am. J. Med. Sc.*, 131:674, 1906.
6. Ochsner, E. H.: Unilocular cyst of the liver, *Ann. Surg.*, 107:829, 1938.

EDITORIAL

Physicians and Schools

MORE THAN a year ago the California Medical Association sponsored a conference of physicians and schools. The first such venture tried in this state, the conference proved to be a great success.

Previously, the American Medical Association had staged meetings of this type over a period of more than ten years and had found them eminently satisfying to all who participated. The C.M.A. initial gathering was undertaken with some trepidation but with excellent results.

This year the Association has planned a series of nine regional conferences between physicians and school people. Five of these have already been held, in San Jose, Stockton, Los Angeles, Fresno and San Diego. The rest will be staged in the fall months.

At these conferences the local doctors have a chance to rub elbows with school authorities, to learn the problems confronting both students and teachers and to discuss ways and means of providing a healthy atmosphere for the school child. The schools have a legal obligation to provide a maximum in healthful environment for the pupils; the physicians have a chance to share in this endeavor and to point out various factors that are scientifically indicated. Behind the whole project is the thought that the child who is ill or is living in an unhealthy atmosphere cannot develop his own potential, either physically or mentally.

An indication of the scope of the health problem presented by California's school children may be found in the fact that at the end of 1955 there were 2,547,440 children attending the public schools of the state. There were 4,780 schools in operation, comprising 60,000 classrooms for grades from kindergarten through the second year of high school.

Governor Knight has stated publicly that the increase in the number of children of school age will require the state to open the equivalent of a new

17-classroom school each Monday morning for the foreseeable future.

Since each child is a potential patient and a carrier of disease, the proximity of other students in the classroom argues for a careful program of maintaining high health standards. Teachers are already under certain legislative requirements to check their health status periodically; the students, at ages where many diseases may occur and be transmitted, should be given comparable protection, both against disease and against each other.

That teachers and other educators are aware of this need is shown by the fact that the five regional physician-school health conferences this year have attracted more than 1,250 participants. Where the school authorities came to the first statewide conference with an apathetic and dubious outlook, they went away fired with the potential good in this movement. Many of them wrote complimentary letters to the Association and it is apparent that school executives and others are most appreciative of the C.M.A.'s taking the lead in sponsoring these gatherings.

Those who have attended include school board members, administrative personnel, teachers, health educators, physical training teachers, sanitarians, dietitians and practically all other categories of school personnel. These people have not only attended but have actively participated in the discussions.

From the enthusiastic response shown in these sessions in the past year, the Association is now suggesting to its county societies and their members that the physicians in each area get together with their own school authorities and discuss their own local problems. Certainly, the health standards of our school children present an adequate challenge to all of us. In matters of the protection or improvement of such standards, the medical profession is in

a position of advising and conferring in the interests of all concerned.

Medicine is at its best when it deals with problems or matters in which its practitioners are uniquely qualified. The public relations of the profession are best served where physicians can contribute their time, talent and training in assisting

others who are not similarly trained. School health standards most assuredly fall within this field and it is hoped that the physicians of California will enter into conferences with their local school authorities for the better environmental, physical and emotional well-being of our youngsters. Their futures may well depend on the steps taken now.

Editorial Comment...

Salk Vaccine: 1956 Emergency Dosage Schedule

CALIFORNIA MEDICINE has received a copy of a letter to the *Journal of the American Medical Association* from Hart E. Van Riper, M.D., Medical Director, N.F.I.P., on the subject "Salk Polio Vaccine: 1956 Emergency Dosage Schedule." The recommendations therein may be summarized as follows:

The recommended dosage schedule for poliomyelitis vaccine consists of two injections at intervals of two to six weeks followed by a third "booster dose" not less than seven months after the second. In the future the procedure will probably consist of giving two doses in the fall and a third dose prior to the seasonal incidence in the summer.

Obviously this method cannot currently be followed with the short supply of vaccine and the diminishing interval before the epidemic period so that some compromise of this ideal schedule will be necessary.

On the basis of preliminary evidence a single dose of vaccine appears to have some protective value—commonly stated to be about 60 per cent effective. Accordingly it seems appropriate to employ available supplies to the fullest extent for first injections

in the specified priority groups (children under 15 years of age and pregnant women). Second doses may then be given only as the supply becomes more abundant.

Second doses should be given not less than two weeks after the first and probably a much longer time is to be preferred. There is no established limit to the interval between first and second injections. It is not necessary to reinstitute a complete series of injections when the second dose is greatly delayed and those who received a first dose last spring may properly be given a second one as the supply of vaccine permits.

March 13, 1956, the Surgeon General of the U. S. Public Health Service recommended postponement of "booster shots" for the present in order to conserve vaccine for the administration of first and second doses to a maximum number of individuals before the next epidemic.

The designated priority groups constitute some fifty million individuals. If a high percentage of these currently receive one or two injections the best feasible effort will have been made to control the disease by this method for the approaching season. Scrutiny of results may do much to clarify our evaluation of Salk vaccination.

Letters to the Editor...

Conferences on Physicians and Schools

The following letter, written by Albert L. Anderson, D.D.S., of San Diego, following his participation in one of the regional conferences on physicians and schools sponsored by the California Medical Association is printed here for the light it casts on the purposes, the conduct and the values of such conferences.

March 19, 1956

I was unable to attend the final hour of the meeting of the Regional Conference on Physicians and Schools in Balboa Park on March 10 in San Diego, so I was unable to fill out any information on my views as to the good or bad points of the Conference. I would like to take this opportunity to express my views.

First of all, I would like to congratulate the California Medical Association for sponsoring a conference of this type. Secondly, I want to express the appreciation of the San Diego County Dental Society plus my own for your kindness in extending an invitation to some dentists in this area. I went to the meeting in somewhat of a quandary as to what to expect, but after I arrived and got into the Conference, I found a group of people who were extremely interested in talking out many of the problems that we have in our present day school setup.

The things that were discussed I found were quite important from the standpoint of any professional man in the personal practice of medicine or dentistry, as I found that there were many problems and misunderstandings between the school people, PTA

and public health people and that of the private physician and dentist. I found that these problems which seemed huge at the time were slowly but surely melted away with the words of understanding.

I have only one suggestion to make and that is that all the local component medical and dental societies should certainly admonish all of their members who are in the private practice of medicine and dentistry to attend conferences of this type. I feel it is extremely important that the private practitioner should be well represented in a discussion group of this type. We can become a little apathetic in our fine practices and feel as though everyone loves us and respects our ability, but we find when we mingle with groups of this kind that there are misunderstandings that have arisen and will arise in the future that could do irreparable harm to the profession unless these problems and misunderstandings are properly cared for by the private practitioner.

Fortunately, the group that I attended was moderated by one of the great believers in the private practice of medicine, Dr. Sam McClendon, who did an excellent job in keeping the discussion group in line.

Thank you once again for your kind invitation, and if I can ever attend another one of these meetings I will deem it an extreme pleasure, as I feel that I received as much information as the school people and other individuals who attended.

Sincerely yours,

ALBERT L. ANDERSON, D.D.S.

San Diego

What Was Your Diagnosis?

FOLLOWING are the pathologists' reports of the diagnoses in the cases that were presented at the Clinical-Pathological Conferences held May 1, 1956, at the Annual Session of the California Medical Association in Los Angeles. The protocols were printed on pages 9 and 10 of the annual session program which appeared in the March issue of CALIFORNIA MEDICINE.

Case 1:

Sarcoidosis, with extensive fibrosis of the lungs.

Case 2:

1. Subacute bacterial endocarditis;
2. Focal embolic glomerulonephritis;
3. Embolic aneurysms of cerebral arteries.

California MEDICAL ASSOCIATION

NOTICES & REPORTS

Physicians' Placement Service

THE California Medical Association for a number of years has maintained a Physicians' Placement Service designed to assist physicians seeking a location, physicians wishing to relocate, and physicians already established who are seeking assistants and associates. The primary function of the Placement Service, however, is to assist communities that are seeking the services of a physician.

The Placement Service came into existence near the close of World War II when the influx of physicians into the state and the maldistribution of established physicians created a recognized need for a positive program of assistance.

Physicians' Placement Service is essentially a clearing house or contact point and information source. All requests for assistance or information are handled in a uniform manner. No stress is placed on the desirability of one location over another. No charge is made for any of the services and at the same time no guarantee is made assuring that a community will obtain the services of a physician or that a physician will succeed in finding a location.

Briefly, the procedure involved in the working of the Placement Service is outlined as follows:

- A. Requests from physicians for assistance in locating are received from the following sources:
 1. The individual physician—by correspondence, phone or office call. (The facilities of the Placement Service are offered to every physician at the time he receives a license to practice in California.)
 2. American Medical Association
 3. Northern and Southern California Advisory Committee to the Selective Service System
 4. County medical societies
- B. Requests for physicians are received from the following sources:
 1. Communities: Organizations—Lions, Rotary,

chambers of commerce, interested citizens, etc.

2. Physicians seeking an associate or an assistant
3. Physicians wishing to sell their practice
4. Physicians seeking someone for a locum tenens
5. County medical societies
6. American Medical Association

When a request for placement information is received, a reply is sent with a copy of the latest listing—a general practice listing or one of the specialty listings, whichever is indicated. The physician's name is then automatically placed on the mailing list of the Placement Service and a personal file is made for office use. He continues to receive information regarding available opportunities in his field until such time as we are notified that he has accepted an opportunity or no longer wishes to remain in our files. Requests referred to us by the county medical societies, the American Medical Association, and the Northern and Southern Advisory Committees are dealt with in the same manner. Every physician who has been issued a license by the State Board of Medical Examiners receives a congratulatory letter in which the facilities of the Placement Service are offered. If the newly licensed physician is interested in receiving information, he indicates this by completing and returning to us

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417 South Hill Street, Los Angeles 13 • Phone MAdison 6-0683

a questionnaire which has been enclosed with the congratulatory letter sent to him. His name is then automatically placed in our files and the same procedure as described before is followed.

Upon receipt of a request from a community for assistance in locating a physician, the following steps are taken:

1. Reply with community questionnaire. Enclosed with the questionnaire is a pamphlet entitled "A Doctor for Your Community" prepared by the American Medical Association.

2. A questionnaire is sent to the secretary of the local county medical society to verify whether actual need exists.

3. Information from community (taken from the questionnaire) and the secretary's opinion are compiled without alteration and placed on our mimeographed Placement Listing.

4. Contact is maintained to ascertain whether there have been any new factors which would make the opportunity more desirable and also to realize as soon as possible when the position has been filled so that the listing can be deleted as an available opportunity.

Requests received through the county medical societies and the American Medical Association follow the same procedure. In the case of physicians who are seeking someone to replace them for a short time, physicians who are seeking an assistant or associate to join them and physicians who are selling their practice, a check is made to see that they are or were members in good standing of the California Medical Association. In listing the opportunities, attempt is made to distinguish between a real estate situation and a real "practice" for sale, for the Listing Service is not concerned with helping real estate dealings.

Knowledge of the Placement Listing Service is available through the following sources:

1. CALIFORNIA MEDICINE
2. Medical schools and hospitals
3. State Board of Medical Examiners
4. American Medical Association
5. State medical associations
6. County medical societies
7. Rural health conferences

The success of the Placement Service can be measured to some degree by the following facts and figures:

A. Number of physicians listed as seeking placement:

Specialists:	
Allergy	6
Anesthesiology	88
Cardiology	29
Dermatology	54

Specialists (Continued):

EENT	52
Internal Medicine	475
Obstetrics-Gynecology	230
Ophthalmology	100
Orthopedics	81
Pathology	68
Pediatrics	177
Proctology	14
Psychiatry	122
Radiology	128
Surgery	381
Thoracic Surgery	33
Urology	81
Miscellaneous (locum tenens, etc.)	38

2,157

General Practitioners 1,297

Total number on file..... 3,454

B. Physicians seeking assistance (March, 1955 to March, 1956):

1. Office visit:	
General Practitioner	69
Specialist	60
2. Letter:	
General Practitioner	578
Specialist	664
3. American Medical Association Referral:	
General Practitioner	117
Specialist	251
4. Other (Northern and Southern Advisory Committee and county medical societies):	
General Practitioner	159
Specialist	317
Total General Practitioner requests.....	923
Total Specialty requests.....	1,292
Total requests	2,215

C. Placement opportunities (March, 1955 to March, 1956):

1. Requests:	
a. Community	45
b. Assistant or Associate.....	13
c. Practice	25
d. Specialties	30
	113
2. Opportunities filled:	
a. Community	24
b. Assistant or Associate.....	9
c. Practice	18
d. Specialties	19
	70
3. Opportunities available:	
a. Community	21
b. Assistant or Associate.....	4
c. Practice	7
d. Specialties	11
	43

Opportunities filled 70

Opportunities available 43

Total requests 113

In Memoriam

CAMPBELL, J. ROGER U. Died in San Francisco, March 29, 1956, aged 56, of heart disease. Graduate of the University of California Medical School, San Francisco-Berkeley, 1929. Licensed in California in 1929. Doctor Campbell was a member of the Santa Clara County Medical Society.



FANNING, JOHN L. Died in Sacramento, March 16, 1956, aged 59, of carcinoma. Graduate of College of Physicians and Surgeons of San Francisco, 1918. Licensed in California in 1918. Doctor Fanning was a member of the Sacramento Society for Medical Improvement.



GREEN, JAMES. Died in Los Angeles, April 2, 1956, aged 82. Graduate of Gross Medical College, Denver, Colorado, 1895. Licensed in California in 1926. Doctor Green was a member of the Los Angeles County Medical Association.



HAWKINS, GEORGE AUGUSTUS. Died in Dinuba, March 15, 1956, aged 85. Graduate of the University of Southern California School of Medicine, Los Angeles, 1895. Licensed in California in 1895. Doctor Hawkins was a member of the Fresno County Medical Society.



HOPKINS, JOHN W. Died in Glendale, March 16, 1956, aged 82. Graduate of the George Washington University School of Medicine, Washington, D. C., 1908. Licensed in California in 1928. Doctor Hopkins was a retired member

of the Los Angeles County Medical Association, the California Medical Association, and an associate member of the American Medical Association.



LOGRASSO, HORACE. Died in Alameda, March 19, 1956, aged 74, of chronic pulmonary fibrosis. Graduate of the University of Buffalo School of Medicine, 1904. Licensed in California in 1945. Doctor LoGrasso was a member of the Alameda-Contra Costa Medical Association.



NIPPERT, EDWARD F. Died in Los Angeles, March 21, 1956, aged 77. Graduate of Miami Medical College, Cincinnati, Ohio, 1902. Licensed in California in 1919. Doctor Nippert was a member of the Los Angeles County Medical Association.



PURLENKY, GEORGE PHILLIP. Died in Napa, March 26, 1956, aged 74. Graduate of the University of California Medical School, San Francisco-Berkeley, 1901. Licensed in California in 1901. Doctor Purlenky was a member of the San Francisco Medical Society.



WOLFE, ALFRED M. Died in San Luis Obispo, March 6, 1956, aged 51, of heart disease. Graduate of the University of Colorado School of Medicine, Denver, 1929. Licensed in California in 1944. Doctor Wolfe was a member of the San Luis Obispo County Medical Society.





WOMAN'S AUXILIARY

TO THE CALIFORNIA MEDICAL ASSOCIATION

The President's Job

During the past few months, we have been telling you about the various organized activities of your Woman's Auxiliary — of Auxiliary efforts in the fields of Legislation, Civil Defense, Mental Health, American Medical Education Foundation, Physicians' Benevolence, promotion of *Today's Health*, and Nurse Recruitment. We hope that by now we have sketched for you a good picture of our interesting, varied and important program. We hope, too, that we have given you some idea of how, under your aegis, we are working constantly to serve our communities and the medical profession.

Behind such work there must be sound organization, and the guiding hand of that organization is, of course, that of the Auxiliary's president. Hers is a job that carries honor, responsibility and, in this great and growing state of ours, challenge. It calls for big capabilities—plus an extraordinary amount of work.

The President's Duties

Perhaps the most important aspect of the job of Auxiliary president is to interpret the work assigned by the C.M.A. to its Auxiliary. Working with her, she has the C.M.A. Advisory Council, the members of the C.M.A. office and the C.M.A. president. From these sources she may receive help, ideas and counsel to aid her in administering her program. She must also keep in close touch with the office of the Woman's Auxiliary to the A.M.A., for from there she will receive the bulk of information and working material for the various Auxiliary activities.

Of course, the Auxiliary president works closely—and constantly—with her state board, her state committees and county committees. At present the state board is made up of five councilors-at-large, eleven district councilors, thirteen committee chairmen and six executive officers besides the president.

The work of the Auxiliary president with the county committees in a state the size of California can be a full-time job in itself. But close contact and cooperation on a local level can achieve a unified effort and a sum total of impressive results. Last year, the Auxiliary president visited 31 out of the 33 organized counties in our state, and the president-elect visited the other two.

Out-of-State Work

Aside from her work "at home," the Auxiliary president has important work to do abroad. Last year, for example, the president traveled to the A.M.A. convention in Atlantic City in June as chairman of the delegation from the California Auxiliary. She represented the California Auxiliary at the national conference of the A.M.A. Auxiliary in Chicago in November. She attended the National Rural Health Conference of the A.M.A. for her Auxiliary, traveling to Portland in March. Fortunately, some of the national conferences which concern the Auxiliary are held closer by, as was the legislative meeting of the A.M.A. which took place in San Francisco last October.

Keeping in Touch with the Membership

Aside from her executive duties, the Auxiliary president keeps in as close touch as possible with the membership-at-large of the Auxiliary. She attends countless social functions, as well as organized meetings. She also reports on her various activities—as well as on state and national Auxiliary problems—five times a year through articles in the Auxiliary publication, *The Courier*.

Interesting Statistics

Some idea of the time and effort required to do the job of Auxiliary president can be gathered from some statistics compiled by this year's president. She traveled over 20,000 miles in the course of her duties, sent nearly 2,000 pieces of mail, was away from her home for 77 days.

A Summing Up

Your Auxiliary is proud of the fact that it has able leaders who are willing to meet the demands of the job of president—and who meet them well. The records of our presidential achievements have been consistently high. These women have not worked alone—for thousands of other Auxiliary members have given unstintingly of their time and effort, too—but they have established a splendid level of leadership. This leadership is demonstrated best in the year-after-year achievements of your Auxiliary in its various endeavors.

Next month, we will tell you about the strides made by your Auxiliary during the past year—a year that has been outstanding for its variety of problems as well as its accomplishments.

MRS. EDGAR WAYBURN

NEWS & NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

Dr. Orvar Swenson, clinical professor of pediatric surgery at Tufts Medical School in Boston, will be visiting lecturer for the fifth annual **Clifford D. Sweet Seminar** on May 18 and 19 at the Children's Hospital of the East Bay, Oakland. The event was instituted four years ago by the medical staff of the hospital in honor of Dr. Sweet, who is emeritus chief of medicine and formerly for 30 years was chief of the department of medicine there.

Beginning at 9:30 a.m., the program will continue with both morning and afternoon meetings on Friday and Saturday in room A-100 of the Children's Hospital of the East Bay, 5105 Dover Street, Oakland, and will culminate with the Sweet Lecture at the Berkeley Women's City Club in Berkeley beginning at 6 p.m., Saturday. Following the lecture there will be refreshments at 7:15 p.m. and a banquet at 8 p.m.

Dr. Swenson will open the 9:30 Friday morning session with a discussion of "Atresias of the Biliary Tract." On Saturday morning, also at 9:30 a.m., his topic will be "Tumors of the Neck in Infancy and Childhood."

Dr. Robert H. Alway, professor of pediatrics and chief of the pediatric service at Stanford School of Medicine, will speak at 11 o'clock Friday morning on "Gastrointestinal Bleeding in Infants and Children." This topic will be continued during the afternoon.

Dr. William Snyder, Sr., attending surgeon at Los Angeles Children's Hospital, will speak at 1:30 Saturday afternoon on "Diagnosis of Intestinal Obstruction in the Newborn."

Dr. Swenson's lecture at the banquet will be on "Congenital Lesions Associated with the Pelvic Parasympathetic System."

All sessions will be open to physicians interested in attending. Reservations for the Saturday night lecture and banquet may be made through the Children's Hospital of the East Bay, 5105 Dover Street, Oakland, OLympic 2-1143.

LOS ANGELES

A \$30,000 **Markle Fellowship** to cover a period of five years was awarded recently to Dr. David M. Prescott, an instructor in anatomy at the University of California at Los Angeles School of Medicine. It was one of several awarded each year by the John and Mary Markle Foundation of New York to help promising young scientists continue with academic studies and researches.

* * *

During the past three years a group at the University of California at Los Angeles Medical Center with particular interest in the **problems of child amputees** has fitted, trained and collected considerable data on some 90 children who have had amputation of one or more limbs. The group, called the Child Amputee Project, is a cooperative venture of the departments of Pediatrics, Surgery and Engineering. Operating under a grant from the Crippled Children's Bureau of the Department of Health, Education, and Wel-

fare, the group is investigating the physiological, psychological and mechanical problems relating to these children.

Among important facts that have been reported by the group to have emerged from their studies is that children can be fitted with **prosthetic devices much earlier** than was previously thought possible—at less than one year of age.

It would be helpful, the group's report said, if "family doctors in Southern California could be informed that the services of this study group are available. We particularly want them to know that early fitting is advisable, also that with the newer techniques fitting can usually be accomplished without amputation of deformed distal portions which used to be considered impossible to fit."

SAN FRANCISCO

The recently elected officers of the **San Francisco Dermatological Society** for 1956-1957 are: President, Dr. William F. B. Harding, Sacramento; vice-president, Dr. Herbert L. Joseph, Vallejo; secretary, Dr. R. Raymond Allington, Oakland; editor, Dr. Edward J. Ringrose, Berkeley.

* * *

One-day symposia on plastic surgery and peripheral vascular surgery will be conducted May 18 and 19 at the University of California Medical Center, San Francisco.

The plastic surgery program, to be held May 18, will present the most recent advances and methods of treatment for the congenital, developmental, traumatic and cosmetic conditions which are included in the general field of plastic surgery. Program chairman is Dr. Harry M. Blackfield, assistant clinical professor of surgery.

The peripheral vascular surgery symposium will be held March 19 with Dr. Edwin J. Wylie, assistant clinical professor of surgery, as program chairman. Therapeutic methods will be described in terms of clinical applicability, with stress on the indications, hazards and anticipated results from each method.

* * *

Dr. Michael J. Hogan of San Francisco was one of 12 ophthalmologists throughout the nation named to serve on committees to select recipients for the residency fellowships in ophthalmology, recently established by the Guild Prescription Opticians of America, the Guild announced. The Guild offers six new fellowships every year, one in each of six areas, with an \$1,800 stipend for three-year residencies.

SONOMA

Dr. James T. Harrison of Vallejo will become **Sonoma County Health Officer** June 1. He was selected by the Board of Supervisors from several applicants for the post vacated by Dr. Robert Westphal, who resigned recently to take a United Nations assignment in Egypt.

A former deputy health officer for the City of Los Angeles, Dr. Harrison is at present studying for a master's degree in Public Health at the University of California School of Public Health in Berkeley.

GENERAL

The **Nevada State Medical Association's** annual meeting will be held this year in conjunction with the Reno Surgical Society in Reno, August 22-25.

Guest speakers include the following: Dr. Leo E. Brown, director, Department of Public Relations, A.M.A., Chicago;

Dr. Frederick C. Cordes, chairman, department of ophthalmology, University of California Medical Center, San Francisco; Dr. Russell R. de Alvarez, professor and executive officer, department of obstetrics and gynecology, University of Washington School of Medicine, Seattle; Dr. William C. Deamer, chairman, department of pediatrics, University of California School of Medicine, San Francisco; Dr. Lester R. Dragstedt, chairman, department of surgery, University of Chicago, Chicago; Dr. Leroy D. Fothergill, Biological Warfare Laboratories, Fort Detrick, Frederick, Maryland; Dr. Henry Harkins, professor and executive officer, department of surgery, University of Washington School of Medicine, Seattle; Dr. William L. Hewitt, associate professor, department of medicine, University of California Medical Center, Los Angeles; Dr. Nils P. Larson, Medical Adviser, Hawaiian Sugar Planters' Association, Honolulu; Dr. George F. Lull, secretary and general manager, A.M.A., Chicago; and Dr. Frederick J. State, chairman, department of nutrition, Harvard Medical School, Boston.

* * *

The Committee on Cosmetics of the American Medical Association will sponsor a symposium at the 105th Annual Meeting of the Association in Chicago, June 11-15, 1956. The symposium will be held at 3 p.m. Wednesday, June 13th in the Ballroom of the Knickerbocker Hotel.

This is the first time in the history of the Association that a program has been specifically planned to inform physicians on the significance of cosmetics in medical practice. This symposium was prompted by the committee's recognition of the increasing psychologic and economic importance of a healthy attractive skin and the close relationship between these aspects and the use of cosmetics.

POSTGRADUATE EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education assemblies and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Assistant Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Dermatology, 1956. June 22 and 23. Ten and one-half hours. Fee: \$35.00.

Laboratory Technicians Symposium. June 23 and 24. Twelve hours. Fee: \$20.00.

Techniques of Hypnosis. July 9 to 11. Fifteen hours. Fee: \$50.00.

Advanced Techniques and Application of Hypnosis. July 11 to 13. Fifteen hours. Fee: \$100.00.

Recent Advances in Surgery. July 16 to 18. Nineteen and one-half hours. Fee: \$50.00 for three days, \$20.00 per day.

Surgery of Trauma. July 19 and 20. Twelve hours. Fee: \$35.00.

Recent Advances in Medicine. July 23 to 27. Thirty-five hours. Fee: \$75.00 for full week or \$20.00 per day.

Anesthesia Seminar. August 27 to 29. Eighteen hours. Fee: \$50.00.

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Symposium on Plastic Surgery, May 18. Seven hours. Fee: \$20.00.

Symposium on Peripheral Vascular Surgery, May 19. Seven hours. Fee: \$20.00.

Fundamental Principles of Radioactivity and the Diagnostic and Therapeutic Uses of Radioisotopes. Two or three month course limited to one enrollee per month. Tuition: \$250.00 per month.

Pharmaceutical Aspects of Radioactivity, May 19. Seven hours. Fee: \$12.00.

Internal Medicine at the Bedside, June 18-22. Forty hours. Fee: To be announced.

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrorse 4-3600, Ext. 665.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Diagnosis and Management of Cardiovascular Diseases, July 20, 21 and 22, Hotel Statler and Good Hope Clinic, twenty-four hours. Fee: \$65.00. Registration closes July 10, 1956.

Anesthesia. Full time for three months. Opening every three months. Fee: \$300.00.

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. Residents admitted without fee. Tuition for all other physicians: \$30.00. (Each session all-inclusive.)

Contact: Phil R. Manning M.D., Director of Medical Extension Education, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

Anesthesiology. Daily, full-time, four months, beginning each four months. Fee: \$300.

Diseases and Injuries of Bones and Joints, Daily, July 2 to July 31. Full time. Fee: \$100.00.

Contact: Chairman, Section on Graduate and Postgraduate Medicine, College of Medical Evangelists, 1720 Brooklyn Ave., Los Angeles 33. ANgelus 9-9131, Ext. 205.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE INSTITUTE

SACRAMENTO VALLEY COUNTIES in association with Stanford University School of Medicine, June 21, 22, 23, Cal-Neva Lodge, Lake Tahoe.

Contact: C. A. Broadbuss, M.D., Director of Postgraduate Activities, P.O. Box A-1, Carmel, California, or Mrs. Margaret H. Griffith, Assistant Director, Postgraduate Activities, California Medical Association, 417 So. Hill St., Los Angeles 13.

Medical Dates Bulletin

MAY MEETINGS

CALIFORNIA HEART ASSOCIATION ANNUAL MEETING AND SCIENTIFIC SESSION, La Playa Hotel, Carmel, May 18 to 20.

Contact: J. Keith Thwaites, executive director, California Heart Association, 1428 Bush Street, San Francisco 9.

AMERICAN ACADEMY OF NUTRITION Annual Convention, May 17-18, Hotel Statler, Los Angeles.

Contact: Mrs. Beth Medearis, executive secretary, 10651 West Pico Blvd., Los Angeles.

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION 23rd Annual Meeting, Hotel Utah, Salt Lake City, Utah, May 30 to June 2.

Contact: Mrs. L. Amy Darter, secretary-treasurer, at State Public Health, 2151 Berkeley Way, Berkeley 4, California.

CALIFORNIA MEDICAL ASSOCIATION REGIONAL CONFERENCE ON PHYSICIANS AND SCHOOLS, May 25-26, Richardson Springs, California.

Contact: Robert L. Thomas, assistant executive secretary, California Medical Association, 450 Sutter Street, San Francisco.

SUMMER AND FALL MEETINGS.

INTERMOUNTAIN PEDIATRIC SOCIETY Annual Convention, June 7-9, Sun Valley, Idaho. Open to all physicians.

LA MESA COMMUNITY HOSPITAL Clinical Session, "Civilian Defense, Radioactive Fallout, and Decontamination of Casualties—both immediate and late care," June 15 to 23, Tripler General Hospital, Honolulu, Hawaii. Chartered plane to leave International Airport. Total cost, including meals, hotel, etc., \$360.00 plus tax.

Contact: John H. Gorby, administrator, La Mesa Community Hospital, 8665 La Mesa Blvd., La Mesa.

IDAHO STATE MEDICAL ASSOCIATION annual meeting, June 17-20, Sun Valley, Idaho.

Contact: Armand L. Bird, executive secretary, Idaho State Medical Association, 364 Sonna Building, Boise, Idaho.

MEDICAL LIBRARY ASSOCIATION 55th annual meeting, June 18 to 22, Hotel Statler, Los Angeles.

Contact: Mrs. Ella Crandall, librarian, Los Angeles County General Hospital, Los Angeles.

WYOMING STATE MEDICAL SOCIETY annual meeting, Jackson Lake Lodge, Moran, Wyoming, June 29 and 30.

Contact: A. R. Abbey, Box 2036, Cheyenne, Wyoming.

COLORADO DIVISION OF THE AMERICAN CANCER SOCIETY 10th annual Rocky Mountain Cancer Conference, Shirley-Savoy Hotel, Denver, Colorado, July 11 and 12.

Contact: John S. Bouslog, M.D., 835 Republic Building, Denver 2, Colorado.

NEVADA STATE MEDICAL ASSOCIATION annual meeting in conjunction with Reno Surgical Society, Riverside Hotel, Reno, Nevada, August 22 to 25.

Contact: Lowell Peterson, M.D., chairman, Arrangements and Program Committee, 130 North Virginia St., Reno, Nevada.

ST. JOHN'S HOSPITAL Postgraduate Assembly, September 10, 11, 12, 9 a.m. to 4 p.m. and 8 to 9 p.m. Elks Club, Santa Monica.

Contact: John C. Eagan, M.D., Director, 1245 Glendon Ave., Los Angeles 24.

SAN DIEGO COUNTY GENERAL HOSPITAL TENTH ANNUAL POSTGRADUATE ASSEMBLY. September 19-20.

Contact: Howard B. Kirtland, Sr., M.D., Chairman, Postgraduate Committee, 3505 Fourth Avenue, San Diego 3.

CALIFORNIA SOCIETY OF INTERNAL MEDICINE ANNUAL MEETING, September 29, La Playa Hotel, Carmel.

Contact: Mrs. Mildred B. Coleman, Assistant Secretary, Room 515, 384 Post Street, San Francisco 8.

SAN FRANCISCO HEART ASSOCIATION Annual Postgraduate Symposium, October 3, 4, 5, 1956, St. Francis Hotel, San Francisco.

Contact: Executive director, 604 Mission St., San Francisco.

HERRICK MEMORIAL HOSPITAL Medical Staff Second Annual Postgraduate Symposium, 9 a.m.-5 p.m., October 5, Berkeley High School Little Theatre, Allston Way between Grove and Milvia, Berkeley, Calif.

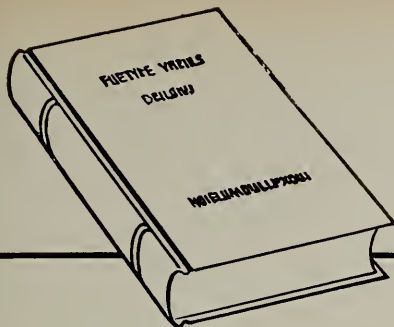
Contact: Administrator's Office, Herrick Hospital, Berkeley, or telephone: THornwall 5-0130.

LOS ANGELES COUNTY HEART ASSOCIATION 26th Annual Symposium on Heart Disease, Wilshire-Ebell Theatre, 4401 West 8th St., Los Angeles, October 10 and 11.

Contact: Robert A. Pike, executive director, Los Angeles County Heart Association, 316 South Bonnie Brae, Los Angeles 57 or telephone DUnkirk 8-4127.

CALIFORNIA ACADEMY OF GENERAL PRACTICE 8th Annual Scientific Assembly, Hotel Statler, Los Angeles, October 14, 15, 16, 17.

Contact: William W. Rogers, executive secretary, California Academy of General Practice, 461 Market St., San Francisco.



THE PHYSICIAN'S *Bookshelf*

OFFICE PROCEDURES—Paul Williamson, M.D. W. B. Saunders Company, Philadelphia, 1955. 412 pages, \$12.50.

Keeping up with Paul Williamson is like trying to swat a horsefly on a hot summer day. He is everywhere. He does everything. And he has the knack of doing things well. This work is no exception.

There was a real place for *Office Procedures*. Thank goodness, Paul, in his wisdom, did not append to the title the apologetic "for the general practitioner."

I know of at least a dozen books purporting to accomplish what this one succeeded in doing. One of them I unearthed in a second-hand book store. It was entitled *Profitable Secrets of the Specialists*. I purchased it for fifteen cents, studied it with great delight, then presented it, sentimentally inscribed, to a dear orthoped friend. Deeply touched by my parry, his riposte, he stated, would be a bound edition of the collected papers of General Hawley.

This work of Williamson's I will not give to anyone. It has front row center on my bookshelf and will be there perennially.

This book rolls up its sleeves and goes to work. Like its author, there is no beating around the bush with philosophic reflection. This is the frontal approach needed in how-to-do-it volumes. Countless of the procedures essential to the solution of everyday problems are described in very clear, direct language. Again and again through the volume you will read, "do it like this." Follows a paragraph or two, illustrated by a line diagram. That's all there is. No vacillation or vague speculation on the merits of alternate methods. "Do it like this" conveys to me that this eminently practical therapeutic virtuoso has considered in his own practice all the methods and has arrived at the best one.

He does not circumvent the sanctuaries of the specialties when he feels that any physician with a knack can accomplish a procedure. There are many instances in which he describes a maneuver using simple objects like paper clips and hair pins. Not, as he says, to avoid the use of proper instruments, but to show that uncomplicated ones can be effective.

It was with a critical eye that I reviewed this offering, to see if Williamson had fallen into the trap of oversimplification in his effort to clarify. He has not.

It would be hard to select an outstanding portion of this manual. It is all meat and potatoes. There will be some occasion each day in which Williamson can help you.

This may well be one of Saunders' most successful books.

* * *

OLD AGE IN THE MODERN WORLD—Report of the Third Congress of the International Association of Gerontology, London, 1954. E. & S. Livingstone Ltd., London, 1955. Distributed in U. S. A. by Williams and Wilkins Company, Baltimore, Maryland, 1955. 647 pages, \$10.00.

This volume is a carefully edited series of 142 papers presented at the above named Congress. Sixty-five additional papers were listed by title only.

The book presents several interesting aspects: First, it is an unusual admixture of reports on clinical observation, sociological experiments and administrative procedures and

surveys; second, it has a marked international flavor with essayists from seventeen countries—the majority from the United States and the United Kingdom.

The material is organized under seventeen general headings with papers varying from four on endocrinology to seventeen on neuropsychiatry.

This publication is in no sense a textbook on gerontology, but contains a wealth of information on the aging and their economic, social, nutritional, psychological and clinic problems. Although carefully edited, there is a good deal of repetitious statement of general observations on the aging by the multiple essayists.

General practitioners, internists and psychiatrists should find much information of value in this volume. "Old Age in the Modern World" would be a "must" for any physician, medical administrator or sociologist interested in people over fifty years of age and their problems.

The material is well organized, legibly printed and adequately indexed.

* * *

MOTO-KINESTHETIC SPEECH TRAINING—Edna Hill Young and Sara Stinchfield Hawk, Stanford University Press, Stanford, California, 1955. 176 pages, \$5.00.

This book has many merits. The content is based on great experience and very careful observation. It teaches through text and excellent pictures the moto-kinesthetic method in speech training which uses manual stimulation of speech muscles. This method cannot be said to be new since it has often been applied by medical speech specialists whenever visual or acoustic stimulation was insufficient or could not be applied because of hearing loss or blindness. Mrs. Edna Hill Young describes at length how she learned to overcome her own speech handicap and how she built her "method" on her own experience. It is astonishing how many non-medical speech therapists are former "speech patients," cured mechanically although the psychogenic causative factors yet exist to be overcompensated by a so-called "method" applied in nearly a compulsive manner.

This book e.g. suggests that the mother of a child whose speech does not start "in time" should stimulate speech through manipulation, as if readiness to talk could be pushed! Mispronunciations during speech development are not permitted: As soon as possible corrective measures come to the rescue. The fact that these "wrong" placements can be a source of oral gratification to the child is not acknowledged.

The appendix written by Dr. Sara Stinchfield Hawk is a condensation of her former books. It describes speech disorders, hearing difficulties, aphasia, and developmental speech pathology. Emotional problems are only incidentally mentioned. Mental tests and testing methods for speech are explained. The description of the mentally retarded child's problems may be of value to parents and teachers, but not equally to the medical profession. This volume proves again how necessary it is that the physician's interests should include the important problem of voice and speech pathology. The bibliography is almost devoid of any medical reference.

NEW CONCEPTS IN SURGERY OF THE VASCULAR SYSTEM—Emile Holman, M.D., Professor of Surgery, Stanford University School of Medicine. Charles C. Thomas, Publisher, 301-327 East Lawrence Ave., Springfield, Illinois. 108 pages, \$3.50.

This monograph, "New Concepts in Surgery of the Vascular System," combines the David W. Yandel lecture, "The Immediate and Late Treatment of Arterial Injuries," and the Arthur Dean Bevan lecture, "The Pathologic Physiology of Post-Stenotic Dilation. Its Significance in the Development of Arterial Aneurysms." The author reviews and discusses the revolutionary changes that have occurred in the past few years relative to the immediate and late treatment of arterial injuries, including some of the interesting pathologic physiology associated with these injuries. The experiences reported from the Korean War demonstrated that the old concepts governing the surgical care of vascular injuries, which were somewhat modified towards the end of World War II, "have become radically, basically and permanently altered." In World War II, the incidence of gangrene and the necessity for amputation following ligation of the popliteal artery was found in all theaters of war to be between 70 and 80 per cent. During the Korean War, the treatment of an injured artery by ligation was discarded, and instead, the principle of immediate reconstruction and repair, a method rarely employed successfully in World War II, had a surprisingly large instance of success, and the amputation rate was lowered to 21 per cent. The author reviews the arterial repairs and the treatment of aneurysms and arteriovenous fistulas during World War II, and then compares the incidence of success without gangrene and with very few thromboses in the care of the vascular injuries during the Korean War. The important details involved in the immediate care of arterial injuries were provided in the report by Jahnke and Howard, and in personal communications from Drs. Taylor and Flow of the United States Medical Officers who were attached to the Marine combat units in Korea and who were associated with Spencer and Grew in their work. The more recent and eminently successful treatment of careful debridement of the traumatized vessel itself, and reestablishment of continuity by various techniques, including homografts, are given in detail by the author, emphasizing the contributing factors to their success. The great importance of repair within a few hours after the injury was demonstrated in a table by Jahnke, which showed that the numbers of amputations increased very definitely in direct proportion to the delay of their treatment.

The mechanism of the development of, and the treatment of, arteriovenous fistula is discussed in detail, and an admirable description of the pathologic physiology accompanying the development of the arteriovenous fistula is presented in crystal clear fashion; the fundamental points in the diagnosis and treatment of the condition in the various parts of the vascular system are presented. The author has had many years of experimental laboratory experience in the development of arteriovenous fistula, and his drawings and x-rays of the development of the fistula and its collateral circulation are beautifully presented. He stresses the importance of the potential hazards of an arteriovenous fistula and its need for early repair, preferably within eight hours of the wounding, or as soon thereafter as conditions permit, with the intent to restore arterial continuity. Fistulas of long duration should be treated by reconstruction and repair whenever possible, primarily to avoid the symptoms of ischemia. Technical problems involving the arterial anastomosis of blood vessels are presented, and it is the author's conclusion that the single, interrupted arterial sutures approximating the vessels without tension is the ideal method

of anastomosing the arteries. The various exposures of the different major arteries for the surgical management of the arterial venous fistulas are illustrated.

The second portion of the monograph discusses the significance of segmental stenosis and poststenotic dilation in the development of arterial aneurysms, as well as the biological importance of structural fatigue. This authoritative study is given in minute detail, both from the clinical standpoint and from the author's many laboratory animal experiments in the development of the poststenotic dilations, and his theory of the stress and the strain involved in the development of the dilated artery beyond the stenosis. He presents an original theory to prove why a vessel develops a dilation beyond a stenotic area. In addition, he utilizes an artificial pump to illustrate the intimate relationship between the height of the pressure and the velocity of flow and the extent of the poststenotic dilation. He states that "the greater the pressure and the velocity of flow with which the blood is ejected from the stenotic channel, the more distantly disturbed are the impacts of the swiftly flowing systolic stream against the momentarily retarded diastolic stream, and therefore the more distantly effective are the shocks of increased lateral pressure against the vessel wall, thus increasing the width and the length of the dilation. The site of delay and the turbulence of the flow was identical with the site of the dilation, as well as with the location of the palpable thrill and the audible bruit." Furthermore, "during diastole there occurs a momentary retardation in the flow, which is accentuated just beyond the stenosis. During systole, however, there emerges from the narrow, stenotic channel a stream of blood at a greater increased velocity as compared with the velocity in the broader channel, either proximal or distal to the stenosis." The various factors in the development of poststenotic dilations are explained in detail.

He goes on then to state that certain clinical observations confirm the great importance of the height of the pressure and the velocity of flow in the development of the poststenotic dilation such as occur in the ascending aorta beyond the subaortic stenosis, through which the left ventricle ejects blood under a maximal pressure at maximal velocity and maximal mass, against a maximal peripheral resistance; and likewise a poststenotic dilation of the pulmonary artery, just beyond a pure valvular stenosis; and in a poststenotic dilation of a coarctation of the aorta, in the descending portion of the aorta, just beyond the coarctation. He indicates that "the absence of dilation proximal to the constriction is dependent upon that concept that pressures here are evenly and uniformly distributed against the limiting vessel wall, and, as there is no rest in the forward flow, there is no conversion of high kinetic energy into a high lateral pressure. The general pressure proximal to the stenosis may be higher than the pressure distal to it, but it is a relatively uniform level of pulsatile pressure evenly distributed throughout, and not subject to the rapidly oscillating variations of high and low pressure, such as occur in the turbulent flow produced by the clash of the streams distal to the stenosis. As a result of this uniform distribution of pressure proximal to the stenosis, uniform expansion of the vessel occurs with each pulsation." Examples of aneurysms and their development and treatment are then discussed, and the significance of the location and development of aneurysms is explained upon the author's theory. His theory on the development of aneurysms coincides with the incidence of aneurysms in the aorta. For example, the highest incidence of aneurysms are located in the ascending aorta and arch, and here the proximal systolic thrust against the maximal resistance of the distal

peripheral bed combine to make the ascending aorta and arch most vulnerable to the increased tension caused by physical exertion, or by an emotional surge with particularly disastrous result if the part of the aortic wall in this area is weakened by syphilis or atherosclerosis. The author then goes on to discuss the biological importance of structural fatigue and the stress factor in the development of aneurysms.

This monograph, a scientific classic, affords fascinating reading to the surgeon, clinician, pathologist and medical student. It presents in a concise and crystal clear manner the very newest of concepts in the surgery of the vascular system.

* * *

PSYCHOCUTANEOUS MEDICINE—Maximilian E. Obermayer, M.D., Clinical Professor and Chairman of the Department of Dermatology, USC School of Medicine, Charles C. Thomas, Publisher, Springfield, Ill., 1955. 487 pages, \$9.75.

In a few more than 400 pages, Doctor Obermayer has furnished a milestone on the road to the understanding of psychocutaneous disease relationships, and he has done it in an extremely readable, orderly and well-documented fashion.

The subject matter is divided into three parts, the first of which deals with mechanisms of the interplay between the nervous system and the skin. The second portion concerns the various dermatoses which have major psychic components such as the phobias, stigmatization, neurodermatitis and hyperhidrosis and those diseases which have secondary associated psychic or neurotic factors such as lupus erythematosus.

The final portion considers the diagnostic and therapeutic approach to dermatoneuroses. In this area, psychiatric aids are used frequently, although Obermayer stresses that the primary treatment is in the hands of the dermatologist if possible. Though specific treatment programs are not defined, general principles are well presented.

The author has succinctly summarized and evaluated literally hundreds of the most significant and pertinent articles appearing in contemporary literature. With this material he has presented a broad base on which the reader may form his own opinion on many of the diseases discussed. Doctor Obermayer's extensive personal experience is called upon frequently, but in its proper perspective. His is a sound, well-oriented, middle-of-the-road viewpoint on psychocutaneous disease.

The publishing is excellent, and there are numerous photographs. One of the best features is the unusually comprehensive bibliography occupying 40 pages at the end of the book.

This is certainly the best work of its kind and should do much to help the skeptics develop a reasonably tolerant approach to psychocutaneous medicine.

* * *

HIGH BLOOD PRESSURE—George White Pickering, M.A., M.B. (Cantab.), M.D. (Ghent), F.R.C.P., Professor of Medicine in University of London, Physician to St. Mary's Hospital, London. Grune & Stratton, New York, 1955. 547 pages, 106 illustrations, \$9.50.

Professor Pickering is admirably qualified to write on high blood pressure, having worked in this field for more than 20 years with patients and in the experimental laboratory. As expected, he presents both practical and fundamental information in this monograph, which is a model of sound thinking and clear writing. Much attention is devoted to essential hypertension, which is regarded as a designation which "represents that section of the population having arterial pressures above an arbitrarily defined value, and having no other disease to which the high pressure can be attributed. If secondary hypertension is excluded, there is

no evidence that high pressure is qualitatively different from normal arterial pressure; the difference is not of kind but of degree."

In addition to the central purpose, that of considering the pathogenesis, course and management of essential hypertension, Pickering thoroughly presents discussions on high blood pressure in association with glomerulonephritis, pyelonephritis, coarctation of the aorta, pregnancy, adrenal disorders, and other conditions. Addressed to students, scientists and practitioners of medicine, this book admirably fulfills its purpose and is worthy of the highest recommendation.

* * *

THE RESTRICTED SODIUM DIET—Compiled under the Supervision of the Diets and Dietary Products Committee of the Los Angeles County Heart Association. Elizabeth Reisinger, Editor. Los Angeles County Heart Association, 316 South Bonnie Brae Street, Los Angeles 57, 1955. 64 pages. Available through any County Heart Association.

The small booklet is a collection of aids to one forced to adjust a kitchen to the rigid demands of a low sodium diet. There are included a brief explanation of physiological principles for the lay person, a section on general instructions, a group of appropriate diets, many enticing recipes, hints to help solve the problem of dining out, suggestions for the lunch box, an analysis of the sodium contents of various foods and wines, and a list of approved low sodium foods commercially prepared, including advice where these may be obtained.

The diets are arranged according to the limitations of a 300 mgm., 800 mgm., and 1,500 mgm. daily sodium intake. Each of these in turn can be adjusted for either an unlimited caloric intake or for a 1,200 calorie maximum. A very convenient substitution system makes variation of the menu simple.

The Los Angeles County Heart Association enlisted the aid of a well trained dietitian, Elizabeth Reisinger, in the preparation of this booklet. They are to be commended for helping to minimize the often disrupting effect of a low sodium sentence upon a household.

* * *

HEALTH AND WELFARE PLANS—Labor-Management Negotiated—Northern California as of May 1, 1954. A report prepared jointly by the Division of Labor Statistics and Research, California Department of Industrial Relations and the Department of Preventive Medicine, Stanford University School of Medicine. Printing Division, Documents Section, Sacramento 14, Calif. 71 pages, 50 cents, plus 2 cents sales tax.

The factual study made by the Division of Labor Statistics and Research of the California Department of Industrial Relations in cooperation with the Department of Preventive Medicine, Stanford University Medical School with regard to the types and varieties of Labor-Management Health and Welfare Plans in Northern California as of May 1, 1954, deserves the attention of any group interested in this problem. The book should be carefully studied, particularly by the various and sundry county medical societies which are faced with the problem of servicing these plans in their respective areas. There is no recommendation made in this study, but the facts as presented speak for themselves. It is the most complete and factual study of this entire problem that has ever been made in the State of California and a great deal of credit should be given to the various and sundry people who accumulated the published data and who were able to present it in such an abstract factual manner. I strongly urge that copies of this material should be obtained by the Medical Services Commissions of each of the constituent medical societies in the State of California.

QUANTITATIVE ANALYSIS OF DRUGS—Second Edition—D. C. Garratt, B.Sc., Ph.D., (Lond.), F.R.I.C., Chief Analysts, Boots Pure Drug Co., Ltd., Philosophical Library, 1955. 670 pages, \$17.50.

This British manual has collected quantitative tests for drugs, not only from the British Pharmacopoeia and the British Pharmaceutical Codex, but also from many scientific periodicals and nonofficial texts such as *Analytical Chemistry*, *Journal of the American Pharmaceutical Association*, *American Journal of Pharmacy*, *Apotheker-Zeitung*, *Archiv für Pharmazie*, *Journal of Pharmacy and Pharmacology*, etc. There is no chapter arrangement, as in most scientific books, but the first 523 pages are devoted to quantitative tests for official and nonofficial drugs, listed alphabetically; the next 29 pages are devoted to Oils, Fats and Waxes, the next 40 pages to Essential Oils and the next eight pages to Physical Methods. There are 13 appendices on Determination of Water, metallic impurities in organic substances, extraction of non-volatile organic materials from viscera, etc., determination of alkaloids, elimination of emulsions, determination of alcohol content, titration in nonaqueous solvents, and tables of constants. The most closely related American books are *Jenkins' Quantitative Pharmaceutical Chemistry*, published in 1949 and *Official Methods of Analysis of the Association of Official Agricultural Chemists*, 1950. Since the first edition of Garratt's book appeared in 1937, there was a distinct need for the 1955 second edition.

* * *

CARDIOLOGY NOTEBOOK—For Preliminary Instruction in Medical Curricula—Columbia University College of Physicians and Surgeons, Grune & Stratton, New York, 1955. 95 pages, \$2.50.

This notebook has been compiled by a group of the medical faculty at Columbia to help the medical student learn his way through the maze of modern methods used in clinical cardiology. It is divided into four parts as follows: 1. Cardiac Fluoroscopy and X-Ray; 2. Electrocardiography; 3. Hemodynamics; 4. Nomenclature for Cardiac Diagnosis. The first three sections are arranged to show normal patterns and values followed by common disease patterns, while the final section describes the fundamentals of proper diagnosis. The outline will surely be of use to the student, but in several places it suffers from a cursory treatment of complicated subjects.

* * *

ASCLEPIADES—His Life and Writings. Translated by Robert Montraville Green, M.D., Emeritus Professor of Anatomy, Harvard Medical School. Elizabeth Licht, Publisher, 360 Fountain Street, New Haven, Conn., 1955. 167 pages, \$6.00.

There are so many names involved in this little book that it takes a while to sort them out. However it concerns the life and writings of Asclepiades of Bithynia, a prominent physician of Rome some 200 years before Galen. The first part is a translation by Robert Montraville Green of a Life of Asclepiades which was written by an Italian, Dr. Antonio Cocchi in 1762. The second part is a translation of a book by Christian Gottlieb Gumpert published in 1794, in which are collected fragments of Asclepiades' work on such matters as the state of Roman affairs before and about the age of Asclepiades, his principles of philosophy, his general pathologic and therapeutic principles and the diagnosis and treatment of disease. The "preface to the reader" is however by Christian Godfrey Gruner. The preface to the whole book is by Sidney Licht, but the publisher is Elizabeth Licht and the work is dedicated to Dr. Walter M. Solomon.

When the reader has unraveled this complicated nomenclature he can read the substance of the book with considerable pleasure.

PRACTITIONERS CONFERENCES—Held at the New York Hospital—Cornell Medical Center—Volume I—Edited by Claude E. Forkner, M.D., F.A.C.P., Professor of Clinical Medicine, Cornell University Medical College. Appleton-Century-Crofts, Inc., New York, 1955. 411 pages.

The content of this book consists of seventeen clinical conferences, often with patients present, held under the auspices of the New York Hospital-Cornell Medical Center in New York. Each conference deals with a separate subject, and all have been thoughtfully chosen to represent medical problems of interest to the practitioner of today. The participants are all outstanding persons in their fields, and have been chosen without regard to their university or other affiliations. Guiding spirit behind the programs, master of ceremonies, and editor of the stenographic reports which comprise the book is Claude E. Forkner, M.D.

The manner of presentation of material which this book uses has a great deal to commend it. With several persons participating in the discussion, a more balanced and integrated picture is possible. Being able to read the spoken words of the authorities as they argue the merits of issues facing all practitioners imparts a drama and interest which make the book easy reading and long remembered. The quality of the material will be readily apparent to anyone who reads the list of speakers. Not so readily described, but clearly the most important ingredient of the book, is the manner in which the conferences are directed by Dr. Forkner, who is able to raise points of interest to everyone, keep the speakers on the subject, point out discrepancies and fuzzy thinking, and finally synthesize the material in a lucid summary.

Some of the subjects include chemotherapy of malignant disease, coronary disease, the role of tobacco in lung disease, and the understanding of various headache patterns. There are many more, and it seems certain that subsequent volumes will keep pace with the most important problems facing the medical practitioner.

* * *

PSYCHIATRY FOR THE FAMILY PHYSICIAN—C. Knight Aldrich, M.D., Associate Professor of Psychiatry, University of Minnesota Medical School. The Blakiston Division, McGraw-Hill Book Company, 330 West 42nd Street, New York, 1955. 276 pages, \$5.75.

This is an excellent book. In the first place, the title accurately describes the contents of the book. This is not a worked-over or simplified psychiatric textbook. Dynamic Psychiatry is presented in terms of normal emotional growth and development at different ages or levels. Along with this the author presents the personality problems that may develop at different stages. Finally, there is excellent practical material on management and treatment. There is a minimum of technical psychiatric wordage. However, there is plenty of good sound material that can be read and applied by anyone who is trying to understand and help human beings.

* * *

LEONARDO THE ANATOMIST. Elmer Belt, M.D., University of Kansas Press, Lawrence, Kansas, 1955. 76 pages, \$2.00.

In this Logan Clendenning Lecture Dr. Belt has collected in brief form but heavily documented the story of Leonardo's Technical Innovations and Discoveries in Anatomy, and in Part II Leonardo's Studies of the Genito-Urinary System. The choice of the latter subject is quite natural since Dr. Belt is of course a prominent urologist. The little book is finely printed and illustrated and well worthy to join the many other books on Leonardo da Vinci.

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1. Spies, T. D., et al.: GP 12:73, No. 1,
1955. 2. Boland, E. W.: J.A.M.A.
160:613, 1956. 3. Gillhespy, R. O.:
Lancet 2:1393, 1955.

PFIZER LABORATORIES Division, Chas. Pfizer & Co., Inc. Brooklyn 6, New York

New England Hospital Builds International Good Will

A new approach to the training of foreign physicians, developed by the New England Hospital in Boston, is described in a recent issue of the *Journal of the American Medical Association*.

Recently launched by the 93-year-old hospital, the program is designed to meet the social, psychological and medical training needs of alien physicians studying in the hospital, Dr. Carl Bearse, Boston, said. Although designed to aid women physicians, the plan is applicable to both men and women.

Since these doctors' English is seldom fluent, the

program includes an intensive English course, with emphasis on idioms and medical vocabulary, during the first month. Demonstrations of American medical techniques are also included in the introductory month.

In the year's medical training which follows, the usual house officers' activities are supplemented by weekly lectures in the basic sciences. Tours and social activities are arranged, so the visitors may meet American business and professional people, as well as people from their own countries.

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(Continued on Page 90)

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References: 1. Karnaky, K. J.: Urol. & Cutan. Rev. 42:812 (Nov.) 1938. 2. Lanceley, F., and McEntegart, M. G.: Lancet 1:668 (Apr. 4) 1953. 3. Karnaky, K. J.: J.A.M.A. 155:876 (June 26) 1954. 4. Davis, C. H.: West. J. Surg. 63:53 (Feb.) 1955.

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Hardening of Arteries Found in Elephant

Heart attacks resulting from the effects of hardening of the arteries can strike elephants as well as men and dogs, three California physicians said recently.

They reported an autopsy on a female Indian elephant who died of acute heart failure secondary to severe arteriosclerosis in many small arteries around the heart.

According to the physicians, their report in a recent issue of the *Archives of Pathology*, published by the American Medical Association, is the first one describing arteriosclerosis in elephants. It has previously been found in humans, cats, dogs, pigs, birds, chickens, and cows.

Few autopsy reports on elephants have been made, but studies go back to ancient Greece and Rome, the authors said. Both Aristotle, the Greek philosopher, and Galen, a Greek physician who lived in Rome about 200 A.D., reported elephant studies, with Galen describing a heart condition as "a bone in the heart."

The San Francisco elephant was at least 47 years old and had lived in the San Francisco Zoological Gardens since 1925. The animal, which appeared healthy the night before death, was found lying on its side and unable to rise a few hours before death.

Autopsy showed severe arteriosclerosis of the

major arteries. In the small coronary arteries, the disease was similar to that observed in birds, dogs, cats, and humans. However, deposits of fatty substances, usually found in the small arterial walls of humans with similar disease, were absent. Similar narrowing of the arteries without fat deposits may occur in old dogs and cause sudden death, they said.

The physicians said that heart failure occurred in the elephant apparently because the narrowing of the small coronary arteries diminished the blood flow to the heart. The same thing has happened in human beings. Not only are the physiological occurrences similar in man and the elephant, but the same terms—"acute myocardial failure" due to "coronary insufficiency"—are used in autopsy reports to describe the conditions.

Drs. Stuart Lindsay, San Francisco, Richard Skahen, Oakland, and I. L. Chaikoff, Berkeley, from the departments of pathology and physiology of the University of California School of Medicine, did the work under grants from the Alameda County Heart Association and the United States Public Health Service.

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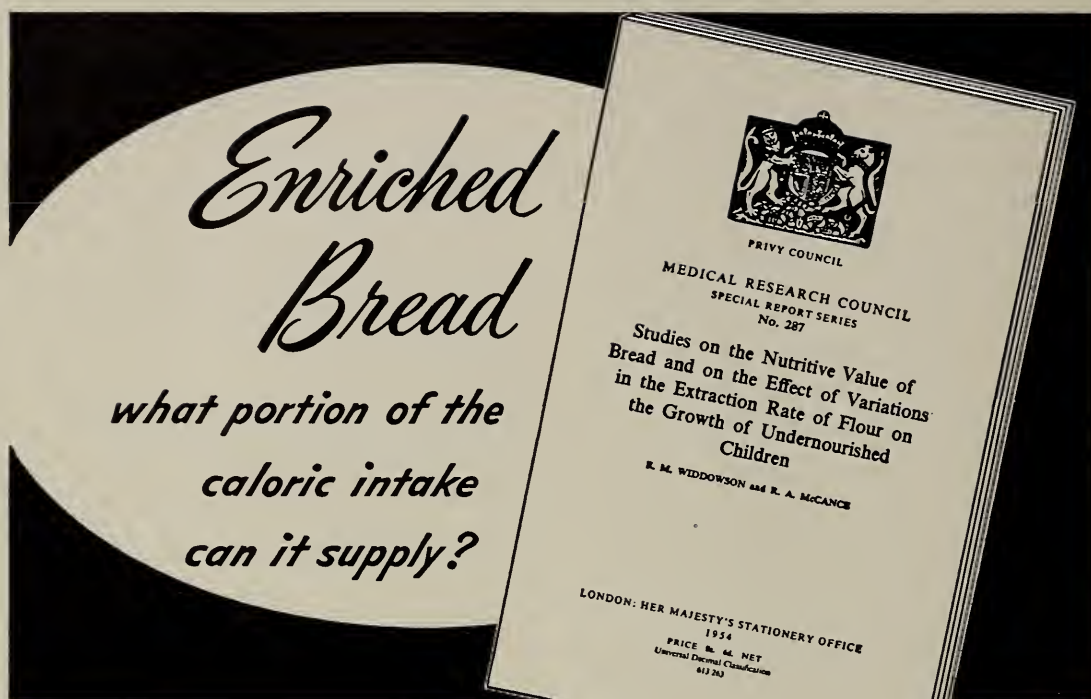
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A striking observation was made in a recently reported nutrition study. Undernourished children in a German orphanage, placed on diets providing a high percentage of their total calories in the form of bread, not only improved in health, but "in spite of the simple diet provided" gained in weight and increased in height at a highly satisfactory rate.*

The children received daily supplements of vitamin A, 2000 I.U., vitamin D, 1000 I.U., and ascorbic acid, 25 mg.

In the words of the investigators: "One of the most striking findings, . . . and perhaps the most unexpected one, was the remarkable way in which the general condition of all the children . . . improved . . ."

"Probably the most important finding concerns the high nutritive value of wheat in any of the forms customarily consumed by man. . . . [The diets fed] provided undernourished children aged 5-15 years with all the nutrients required

for a high rate of growth and development for a period of 18 months."

Enriched bread, made from 70 per cent extraction flour and very similar to enriched bread sold in the United States, was among the breads used. While the diets used in this study are not justified in this country with its abundant food supply, hence do not merit consideration for applicability here, they nevertheless serve to emphasize again the high nutritional value of enriched bread.

*Widdowson, E. M., and McCance, R. A.: Studies on the Nutritive Value of Bread and on the Effect of Variations in the Extraction Rate of Flour on the Growth of Undernourished Children, Medical Research Council, Special Report Series, No. 287, London, Her Majesty's Stationery Office, 1954.



The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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Reasons Given For Delay In Seeking Surgical Care

A new explanation of the familiar experience of putting off a visit to the doctor even when danger signals are present was given recently by a group of Cincinnati researchers.

One of their major findings in a survey of Cincinnati surgical patients was that people do not delay just because they aren't aware of what the danger signs mean.

In fact, among 200 patients, the person who was totally ignorant of the importance of danger signals was "extremely rare," indicating that the medical profession and medical publicists have done a good job of educating the public, they said in a recent issue of the *Journal of the American Medical Association*.

Of the 200 patients surveyed, 23 had no opportunity to delay seeking surgical treatment, and no information was obtained on 11. Of the 166 patients who had an opportunity to delay, 71 did so, they said.

Many of these delayed, not because of ignorance of the danger signs' meaning, but because of various personality and emotional factors, the survey showed.

In addition, it disproved several other reasons frequently given as causes of delay. Delaying patients were of all ages—not "young and foolish" or "old and fatalistic." There was no difference in intelligence between those who delayed and those who did not. Sex was not a factor; men and women

(Continued on Page 84)



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A recent clinical study* of 46 ambulatory nonhospital patients treated with Nulacin† and followed up to 15 months describes the value of ambulatory continuous drip therapy by this method. Total relief of symptoms was afforded to 44 of 46 patients with duodenal ulcer, gastric ulcer and hypertrophic gastritis.

The delicately flavored tablets dissolve slowly in the mouth (not to be chewed or swallowed). They are not noticeable and do not interfere with speech.

Nulacin tablets are supplied in tubes of 25 at all pharmacies. Physicians are invited to send for reprints and clinical sample.

*Steigmann, F., and Goldberg, E.: Ambulatory Continuous Drip Method in the Treatment of Peptic Ulcer, *Am. J. Digest. Dis.* 22:67 (Mar.) 1955.

†Mg trisilicate 3.5 gr.; Ca carbonate 2.0 gr.; Mg oxide 2.0 gr.; Mg carbonate 0.5 gr.

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1. Bollet, A. J., Black, R., and Bunim, J. J.: *J.A.M.A.* 158: 459, June 11, 1955.

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Reasons Given For Delay In Seeking Surgical Care

(Continued from Page 78)

were almost equally represented in both delay and nondelay groups.

The survey neither confirmed nor denied the idea that cost influences delay. All of the patients were in a hospital which provides care even for those who cannot pay, but some might have delayed because they were ashamed of having to accept free treatment.

Their study also disproved the idea that delay is a symptom of one or another specific type of mental illness. There was no significant difference in the psychiatric diagnoses of delayers and non-delayers.

The researchers did find, however, that delay resulted from various conscious and unconscious factors operating before, during, and after recognition of a sign or symptom. The kind of illness suffered could play a part in the delay, but was not by itself a sufficient reason, they said.

While the medical profession and publicists have been successful in reaching most persons with straight information about disease, there is still much to be done to overcome these emotional factors causing delay, the authors said, suggesting that there be some changes in the emphasis in public

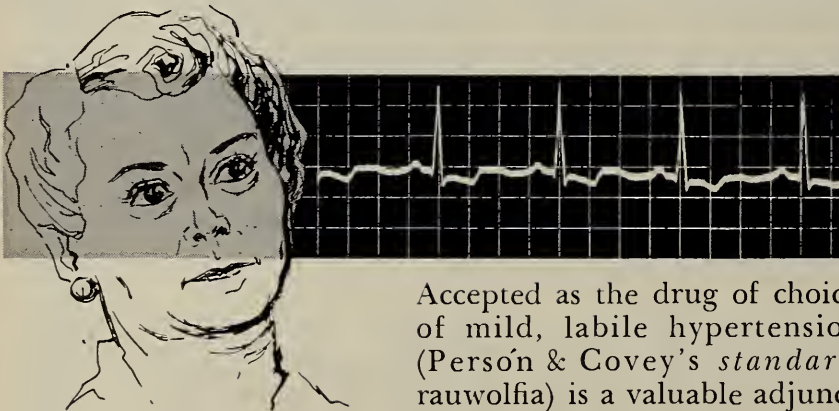
education and that more attention be paid to the emotional factors during medical and surgical treatment.

Making the report were James L. Titchener, M.D., Israel Zwerling, M.D., Ph.D., Louis Gottschalk, M.D., Maurice Levine, M.D., William Culbertson, M.D., Senta Cohen, Ph.D., and Hyman Silver, Ph.D., from the departments of surgery and psychiatry, University of Cincinnati College of Medicine. Dr. Zwerling is now at Albert Einstein College of Medicine, New York. The study was supported by a grant from the National Institutes of Health, Bethesda, Maryland.

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There are at least a score of openings in the various international health programs in which the United States is participating. Posts available to physicians in countries in various parts of the world include chief of health mission, medical advisor, researchers and professors of epidemiology, bacteriology, parasitology, microbiology, preventive medicine, internal medicine. Salary is based on experience and qualifications. The tour of duty is two years in each case. PHS points out that the transportation of dependents and household effects to and from post is provided free. For details write Division of International Health, PHS, Washington 25, D. C.

—A.M.A. Washington Letter



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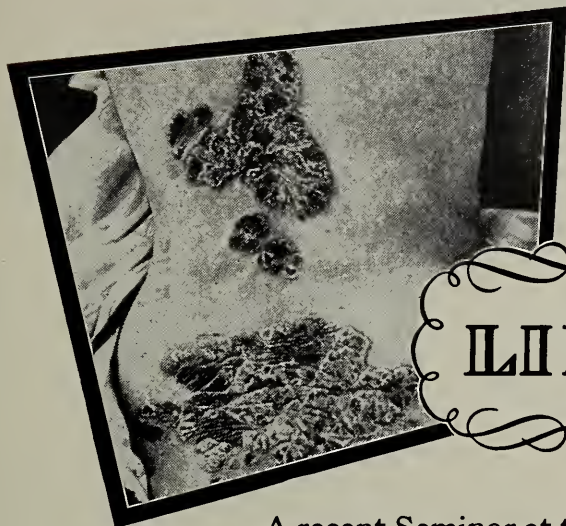
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¹ The New England Journal of Medicine 253:395, September, 1955.

² American Journal of Medical Science 229:379, April, 1955.

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1. Seminar; Psoriasis: N. Y. Academy of Sciences, Oct. 17, 1955.
2. Harris, O. J., et al. The Treatment of Psoriasis with Whole Defatted Pancreatic Substance. New York Physician & American Medicine, 37:4 (Nov. 1951).
3. Harris, O. J., et al. Whole Defatted Pancreatic Substance in The Treatment of Psoriasis. Jrl. Lancet, 72:7 p: 328-330 (July 1952).
4. Combes, F. C., Management of Psoriasis As a Metabolic Lipid Disturbance. New York State Journal Medicine, 54:13 (July 1954).

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(Continued from Page 74)

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New England Hospital Builds International Good Will

(Continued from Page 60)

States, hospitals have a vast potential for building international good will, Dr. Bearse said, suggesting that the New England Hospital plan might be used in other hospitals.

Given proper indoctrination, foreign house officers not only can be valuable to American hospitals during their training period, but, on returning home, can exert a powerful influence as emissaries of good will among their patients in their own countries, he said.

Approximately 60 per cent of the hospitals approved for residencies and internships have alien physicians on their house staffs. These physicians constitute up to one-fourth of all the residents in the country, he said.

Dr. Bearse is consultant in the department of surgery, and advisory consultant in the department of education international program at New England Hospital.



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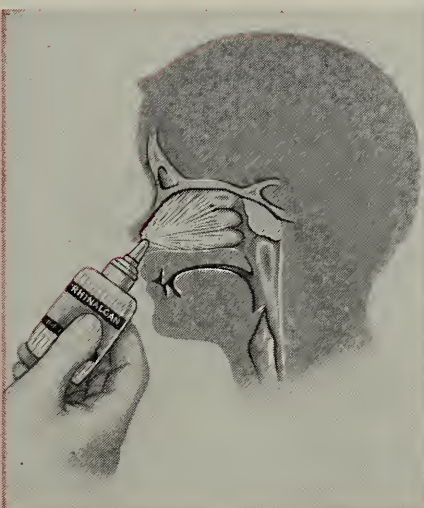
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1. Van Alyea, O. E., and Donnelly, W. A.: E.E.N.&T. Monthly, 31, Sept. 1952.
2. Fox, S. L.: AMA Arch. Otolaryn., 53, 607-609, 1951.
3. Molomut, N., and Harber, A.: N.Y. Phys., 34, 14-18, 1950.
4. Lett, J. E., (Lt. Col. MC-USAF) Research Report, Dept. Otolaryn., USAF School Aviat. Med., 1952.
5. Hamilton, W. F., and Turnbull, F. M.: J. Amer. Pharm. Ass'n., 7, 378-382, 1950.
6. Browd, Victor L.: Rehabilitation of Hearing, 1950.
7. Kugelmass, I. Newton: Handbook of the Common Acute Infectious Diseases, 1949.

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Pyorrhea Requires Both Dental, Medical Care

Diagnosis and treatment of bleeding gums must be a cooperative project of doctor and dentist, an editorial in a recent issue of the *Journal of the American Medical Association* said.

"Periodontal disease is by far the major cause of tooth loss in individuals over 35 years of age," it said. Inflammation of the gums is present to some degree in most persons who eat chiefly soft and cooked foods, and gums may bleed from a variety of causes, local or systemic.

Local irritation of the gums is almost always the primary cause, although occasionally some underlying systemic factor may cause bleeding in the absence of local irritation. Most frequent local causes are tartar accumulation, injury, abnormalities in the bite, food impaction, and ill-fitting dentures or fillings.

It would be a mistake, however, to consider all gum bleeding as a sign of uncomplicated gingivitis or periodontitis, as is frequently done, the editorial said. The bleeding may be a sign of serious general disturbance, such as scurvy, pellagra, diabetes, leu-

(Continued on Page 96)



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Original Research in Medicine and Chemistry

Pyorrhea Requires Both Dental, Medical Care

(Continued from Page 92)

kemia, pregnancy, allergy, or lead, bismuth, or mercury poisoning.

The editorial said that local treatment by the dentist can correct the mouth condition if there is no underlying systemic disturbance. But, if there is an underlying cause, treatment of that condition alone will not stop the bleeding. There must also be local treatment by the dentist.

Prescription of vitamin supplements as the sole treatment for bleeding gums is "irrational and ineffectual." Antibiotics may serve to relieve the acute inflammation, but the condition almost invariably returns as soon as the antibiotic levels are no longer effective. Removal of tartar and other local factors is necessary to achieve lasting effects.

Physicians and dentists must frequently refer patients to each other for dental or medical surveys, since the best results in the treatment of pyorrhea can be obtained only when all the causative factors, usually more than one, are discovered and treated, it said.

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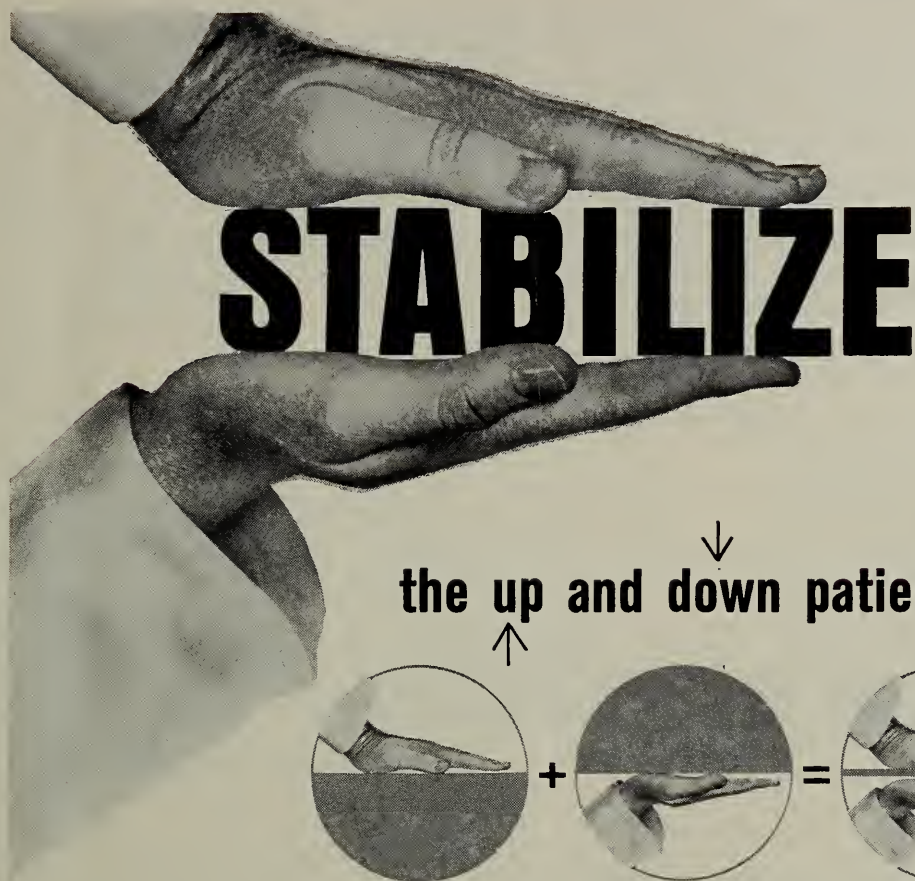
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1. Arnoff, B.: Personal communication. 2. Lazarte, J. A., and Petersen, M. C.: Personal communication.

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REFERENCES: 1. Waisbren, B. A., and Crowley, W.: A.M.A. Arch. Int. M. 95:653, 1955. 2. Perry, R. E., Jr.: North Carolina M. J. 16:567, 1955.

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(County society secretaries are requested to notify California Medicine promptly when changes are indicated in their roster information.)

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Pres., William Kaiser, 3020 Regent St., Berkeley.
Secy., Robert Leet, 3310 Elm St., Oakland.

Butte-Glenn Medical Society. Meets Fourth Thursday.
Pres., W. S. Lawrence, 405 Sycamore, Gridley.
Secy., Rufus C. Rucker, 188 E 5th St., Chico.

Fresno County Medical Society, 616 Security Bank Building, Fresno. Meets Second Tuesday, 6:30 p.m., Sunnyside Country Club.
Pres., Verne G. Ghormley, 3032 Tulare St., Fresno.
Secy., John P. Conrad, 716 Olive, Fresno.

Humboldt County Medical Society. Meets Second Thursday.
Pres., T. W. Loring, 715 I St., Eureka.
Secy., George B. Watson, 539 G St., Eureka.

Imperial County Medical Society. Meets Second Tuesday, 8 p.m., Pioneer Memorial Hospital, Brawley.
Pres., Robert J. Westcott, 239 S. 8th St., El Centro.
Secy., Ernest Brock, 200 S. Imperial Ave., Imperial.

Inyo-Mono County Medical Society. Meets Fourth Tuesday except December, January, February.
Pres., J. Lloyd Mason, 512 West Line, Bishop.
Secy., Robert W. Denton, 611 W. Line, Bishop.

Kern County Medical Society, 2603 "G" Street, Bakersfield. Meets Third Tuesday, 7:30 p.m., Stockdale County Club except June, July, August.
Pres., R. W. Burnett, 515 Truxtun Ave., Bakersfield.
Secy., W. H. Moore, Jr., 1715 - 28th St., Bakersfield.

Kings County Medical Society. Meets Second Monday, 8:00 p.m., Legion Hall, Hanford.
Pres., Harold J. Jacob, Corcoran.
Secy., George D. Guernsey, 214 Heinlen St., Lemoore.

Lassen-Plumas-Modoc County Medical Society. Meets on call.
Pres., W. B. McKnight, Quincy.
Secy., W. C. Batson, Greenville.

Los Angeles County Medical Assn., 1925 Wilshire Blvd., Los Angeles 57. Meets First and Third Thursdays, 1925 Wilshire Blvd., Los Angeles.
Pres., Edward C. Rosenow, Jr., 65 N. Madison Ave., Pasadena.
Secy., J. Norman O'Neill, 1930 Wilshire Blvd., Los Angeles 57.

Madera County Medical Society.
Pres., Coe T. Swift, 501 E. Yosemite Ave., Madera.
Secy., Vilhjalmur J. Guttormsson, 501 E. Yosemite Ave., Madera.

Marin County Medical Society, 817 "D" St., San Rafael. Meets Fourth Thursday of every month, 7:00 p.m.
Pres., John W. Culmer, 1703 5th Ave., San Rafael.
Secy., Russell R. Klein, 1703 5th Ave., San Rafael.

Mendocino-Lake County Medical Society.
Pres., N. E. Bradford, Box D, Boonville.
Secy., R. B. Smalley, 361 S. Main, Willits.

Merced County Medical Society, Meets Fourth Thursday, Hotel Tioga, Merced.
Pres., Shelby Hicks, Shaffer Bldg., Merced.
Secy., Gerald D. Wood, 544 West 25th St., Merced.

Monterey County Medical Society, P. O. Box 308, Salinas. Meets First Tuesday.
Pres., Clyn Smith, Jr., Cass St. at Carmelita, Monterey.
Secy., Seymour Turner, 921 E. Alisal St., Salinas.

Napa County Medical Society. Meets Second Wednesday.
Pres., Donald B. Marchus, 2020 Jefferson St., Napa.
Secy., Robert C. Ashley, 2560 Jefferson St., Napa.

Orange County Medical Association, 1226 N. Broadway, Santa Ana. Meets First Tuesday 7:00 p.m.
Pres., Frederick T. Hunt, 1616 N. Broadway, Santa Ana.
Secy., Robert T. Garrett, 210 Del Mar Ave., San Clemente.

Placer-Nevada-Sierra County Medical Society. Meets every second Wednesday of each month.
Pres., Nathan A. Dubin, Lincoln.
Secy., T. J. Rossitto, 1166 High St., Auburn.

Riverside County Medical Association, 4241 Market Street, Riverside. Meets Second Monday, 8:00 p.m., El Loro Room, Mission Inn.
Pres., Richard N. Boylon, 3616 Main St., Riverside.
Secy., Vean M. Stone, 4241 Market St., Riverside.

Sacramento Society for Medical Improvement, 2731 Capitol Ave., Sacramento. Meets Third Tuesday, 8:30 p.m., Sutter Hospital Auditorium.
Pres., Edmund E. Simpson, 2615 Eye St., Sacramento.
Secy., Paul G. Larson, 2901 Capitol Ave., Sacramento.

San Benito County Medical Society. Meets First Thursday, Hazel Hawkins Memorial Hospital, Hollister.
Pres., Kent S. Taylor, 345 Fifth St., Hollister.
Secy., R. L. Hull, Bank of America Bldg., Hollister.

San Bernardino County Medical Society, 615 D St., San Bernardino. Meets First Tuesday 8:00 p.m., San Bernardino County Charity Hospital.
Pres., Frank C. Melone, 124 East "F" St., Ontario.
Secy., Wendell L. Ogden, 1066 East Base Line, San Bernardino.

San Diego County Medical Society, 101 Medical-Dental Bldg., San Diego 1. Meets Second Tuesday, Mission Valley Country Club, 950 West Camino Del Rio.
Pres., Maurice J. Brown, 2001 Fourth Ave., San Diego.
Secy., James I. Knott, 3712 30th St., San Diego 4.

San Francisco Medical Society, 250 Masonic Ave., San Francisco 18. Meets Second Tuesday, 8:15 p.m., 250 Masonic Ave., San Francisco 18.
Pres., Matthew N. Hosmer, 250 Masonic Ave., San Francisco 18.
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San Joaquin County Medical Society. Meets First Thursday, 8:15 p.m., 936 N. Commerce St., Stockton.
Pres., Louis P. Armanino, 2633 Pacific Ave., Stockton.
Secy., F. A. McGuire, 307 Medico-Dental Bldg., Stockton.

San Luis Obispo County Medical Society. Meets Third Saturday, 7:00 p.m., Anderson Hotel, San Luis Obispo.
Pres., J. B. Smith, 1405 Garden St., San Luis Obispo.
Secy., Anthony V. Keese, P. O. Box 319, San Luis Obispo.

San Mateo County Medical Society, 122 Second Ave., San Mateo. Meets Third Tuesday of each month.
Pres., Norman C. Fox, 512 Jenevein Ave., San Bruno.
Secy., Paul R. Freeman, 2946 Broadway, Redwood City.

Santa Barbara County Medical Society, 300 West Pueblo St., Santa Barbara. Meets Second Monday, Cottage Hospital.
Pres., Richard B. McGovney, 2950 State St., Santa Barbara.
Secy., Robert I. Cord, 300 W. Pueblo St., Santa Barbara.

Santa Clara County Medical Society, 1024 The Alameda, San Jose 26. Meets Third Monday of every month, except in July and August.
Pres., Dan Brodovsky, St. Claire Bldg., San Jose.
Secy., J. Frederic Snyder, 205 Medical Bldg., Campbell.

Santa Cruz County Medical Society. Meets every Second month, Second Tuesday. Time, place to be announced.
Pres., Ludwig Selzer, 330 Soquel Ave., Santa Cruz.
Secy., Samuel B. Randall, 230 Walnut Ave., Santa Cruz.

Shasta County Medical Society. Meets First Monday.
Pres., Howard Wells, 1308 Court St., Redding.
Secy., Roland R. Jantzen, 1726 Market St., Redding.

Siskiyou County Medical Society. Meets Sunday on call.
Pres., Donald L. Meomber, 750 S. Main St., Yreka.
Secy., Roy F. Schlappi, 750 S. Main St., Yreka.

Solano County Medical Society. Meets Second Tuesday, 8:00 p.m., at different meeting places.
Pres., W. R. Hoops, 1727 Sonoma Blvd., Vallejo.
Secy., George J. Budd, 1004 Marin, Vallejo.

Sonoma County Medical Society 300 American Trust Bldg., Santa Rosa. Meets Second Thursday.
Pres., Andrew E. Thuesen, 304 American Trust Bldg., Santa Rosa.
Secy., Frank E. Lones, 304 American Trust Bldg., Santa Rosa.

Stanislaus County Medical Society. Meets Third Tuesday of the month, 7 p.m., Hotel Covell, Modesto.
Pres., E. E. Chouret, 168 S. Third Ave., Oakdale.
Secy., Robert W. Purvis, 709 - 18th St., Modesto.

Tehama County Medical Society. Meets at call of President.
Pres., Charles Milford, 737 Washington St., Red Bluff.
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Tulare County Medical Society.
Pres., Gordon L. Jackson, P. O. Box 177, Terra Bello.
Secy., C. H. Johnson, 795 N. Cherry, Tulare.

Ventura County Medical Society. Meets Second Tuesday, 7:15 a.m., Colonial House, Oxnard.
Pres., Richard Reynolds, 701 N. A St., Oxnard.
Secy., F. K. Helbling, 34 N. Ash St., Ventura.

Yolo County Medical Society. Meets First Wednesday.
Pres., Neil D. Elzey, Woodland Clinic, Woodland.
Secy., John H. Jones, 219 F St., Davis.

Yuba-Sutter-Colusa County Medical Society. Meets Second Tuesday.
Pres., James J. Hamilton, 1212 F St., Marysville.
Secy., Robert I. Hodgins, 729 D St., Marysville.

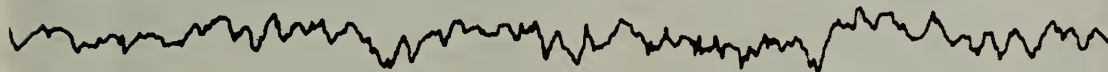
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Surgery Can Prolong Life in Hypertensives

Patients who underwent surgery for relief of high blood pressure five to ten years ago had a great advantage over patients who were medically treated.

Dr. Paul Dudley White, Boston heart specialist and consulting physician to President Eisenhower, reviewed the case histories of 100 patients with severe hypertension and associated cardiovascular complications in a recent issue of the *Journal of the American Medical Association*. In the same issue of the *Journal*, another group of Boston physicians, Drs. Reginald H. Smithwick, Richard D. Bush, Dera Kinsey, and George P. Whitelaw, reported on 2,227 patients with the same disorders.

Both reports said that surgery gave better results than the routine medical methods usually employed before development of potent hypotensive drugs and restricted diets.

However, Dr. White said a future follow-up will be needed to determine the relative value of the newer methods of treatment, including drugs and dietary restrictions, in contrast to surgery in serious hypertension.

Dr. Smithwick and his group said, "... the only way to remove hypertensive cardiovascular disease from its position of leading all other diseases in the death rate is to apply intelligently all information available regarding the best methods of therapy, medical and surgical, to each patient as an individual before irreversible changes occur."

Their study showed that the outlook for hypertensive patients became worse as damage to the heart, blood vessels, and kidneys increased and that the outlook in all stages was better for women than men.

Dr. Smithwick and his associates divided 1,118 male and 1,109 female patients into four groups according to the severity of the hypertension and the extent of additional cardiovascular complications. Group 1 contained patients with hypertension but no cardiovascular disease; groups 2 and 3 contained patients with increasing degrees of damage in the brain, heart, and kidney areas, and group 4 contained patients with the most advanced cardiovascular changes.

Patients treated surgically underwent an operation called splanchnicectomy. This operation, devised by Dr. Smithwick more than 15 years ago, involves the removal of large portions of the splanchnic nerves which serve various organs within the abdominal cavity. In many instances the operation brings about a dilation of blood vessels and a consequent decrease in blood pressure.

The 1,608 patients treated surgically, at least five years ago, were compared to 619 patients treated with the standard medical methods then in use.

The mortality rates were significantly better in all four groups of surgically treated men and in groups 2 and 3 of the surgically treated women. In either

(Continued on Page 14)

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This is in accordance with the findings of Wachstein and Gudaitis in the "Journal of Laboratory and Clinical Medicine," 42:1, 98-107 (1953): "It seems the growing fetus drains the maternal source of Vitamin B₆, resulting in a disturbance of normal protein metabolism. It is suggested that pregnant women be given 10 mg. of pyridoxine hydrochloride daily."

In addition, phosphorus-free calcium lactate in the Boyle formula conforms to the findings of diet authorities Page and Page, "Obstetrics and Gynecology," 1:94-100 (1953): "Leg cramps may be either prevented or relieved to a significant degree by the use of calcium salts free of phosphorus."

Boyle Obnatal also contains Vitamin K for hypoprothrombinemia and 60 mg. available iron.

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(Iron content 60 mg.)		IODINE	0.15 mg.
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VITAMIN B ₁	4.0 mg.	MANGANESE	4.5 mg.
VITAMIN B ₂	2.5 mg.	MOLYBDENUM	0.15 mg.
NIACINAMIDE	60.0 mg.	ZINC	2.25 mg.
FOLIC ACID	0.3 mg.		

Bottles of 100 and 1000 capsule-shaped tablets at all pharmacies.



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Surgery Can Prolong Life in Hypertensives

(Continued from Page 10)

sex, the outlook for group 4 was poor, they said. The survival of women in groups 1 and 4 increased slightly, but not significantly, after surgery.

The physicians recommended on the basis of their study that patients in groups 2 and 3 in general should be treated surgically, especially if medical treatment is found to be ineffective after a trial of eight to 10 weeks. It is important to consider surgical treatment for these patients before they advance into group 4, they said.

The outlook for patients in group 4 where irreversible changes have occurred is poor, but, in a few cases, combined medical and surgical therapy may produce dramatic results in alleviating symptoms and prolonging life. Combined treatment for those patients who are "reasonable operative risks" and who do not have advanced damage to the kidneys offers the best chance for prolonged life, they said.

Dr. White reported on 50 patients who, between 1941 and 1946, underwent lumbodorsal sympathectomy.

(Continued on Page 22)

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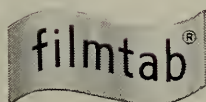
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(Continued from Page 14)

tomy, another operation devised by Dr. Smithwick. In this type of operation, some of the sympathetic nerves controlling internal organs are cut. It produces in many respects the same effect as a splanchnicectomy.

The mortality rate of this group was compared to that of another 50 patients with serious hypertension who were treated medically.

Of the 50 medically treated patients, 48 are now dead, while only 25 of the 50 patients who underwent surgery are dead. Of the 25 living patients, 20

are in good health and show blood pressures which in almost every case are much lower than they were before surgery. Four are in fair health and one is in poor health.

The average duration of life following sympathectomy in the 25 survivors is 10.5 years. Of all surgically treated patients the average survival time is 8.1 years. The average survival time in the 48 medically treated patients who have died was 3.7 years. For all 50 medically treated patients, the average is 4.1 years. Thus the ratio of length of survival is already two to one, Dr. White pointed out.

It is "quite evident," Dr. White said, that surgery

(Continued on Page 34)

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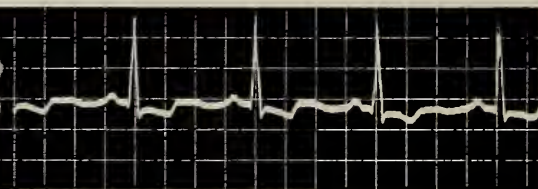
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¹ The New England Journal of Medicine 253:395, September, 1955.

² American Journal of Medical Science 229:379, April, 1955.



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Pediatrician Recommends "Fencing in" Toddlers

An Evanston, Ill., pediatrician recently recommended that preschool children be separated from "adult gadgets and trouble" for at least half of their play time.

Dr. E. Robbins Kimball said this will help the child in his adjustment and adaptability by allowing him to escape the adult "no" for part of his time and by slowing down the expansion of his world to the point where he can handle it.

A child does not really understand what belongs to him and what belongs to his parents until he is four years old. Until then he should be relieved of the responsibility of not touching the possessions of adults for half of his playing hours (four hours a day), Dr. Kimball said in a recent issue of the *Journal of the American Medical Association*.

Because parents cannot live in a nursery, Dr. Kimball suggested that the child be separated from the adult world by means of a play pen, gated room or porch, fenced yard, or nursery school, depending on his age.

Such "compartmentation" gives nervous mothers relief and decreases the number of household accidents. In addition, it prevents the child from developing habitual patterns of resistance to adults as they try to direct him.

In a study of 363 children, followed for five to ten years, Dr. Kimball found that a child adapted to new situations more readily as soon as he escaped the adult "no" for half of his play time. In fact, toddlers' adaptability increased fourfold with "fencing in."

He also found that being a first child, having nervous parents, and not being breast fed, had an adverse effect on the child's adaptability.

Many first children had difficulties in adjustment because their parents, being unfamiliar with growth, expected them to perform at about twice their developmental level.

"Many of these parents would have been indignant if a school system had tried to force their nine-year-old child to master a topic such as calculus. Yet, many persisted in teaching their two-year-old the differences between mine and thine, not to spill food, not to suck his thumb, to give up his bottle, and many other habits that he was not ready to master until twice that age," he said.

Dr. Kimball found that children who had trouble adapting "looked with questioning, frequently with apprehension, and too often with great fear at all adults" during examinations. Others, instead of being cautious, were boldly aggressive and ignored direction. Children who showed more adaptability were calm and smiling and enjoyed the examination.

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ANESTHESIOLOGIST: The Placement Committee of the California Society of Anesthesiologists has the name of several Board eligible and Board qualified Anesthesiologists desiring to locate in California. These names may be obtained by any interested party or institution by writing to James Durkin, M.D., Chairman, Placement Committee, 305 South Westlake Avenue, Los Angeles 57, California.

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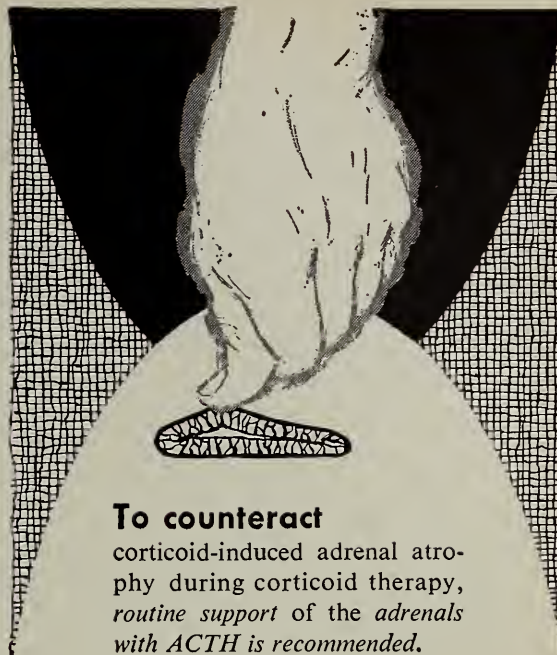
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(Continued on Page 48)



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Surgery Can Prolong Life in Hypertensives

(Continued from Page 22)

helped more in lengthening life, improving health, and lowering blood pressure than did the routine measures of treatment before the introduction of strict dieting and potent hypertensive drugs.

He also said that from his experience it seems probable that young and middleaged men having essential hypertension with complications, especially those involving the heart, are better subjected to surgery, "disagreeable as that can be, than to the tedious and continuous administration of drugs and dietary restriction."

Dr. Murray Biography Now Available

A five-page mimeographed biographical sketch of Dr. Dwight H. Murray, president of the American Medical Association, is now available and copies may be obtained upon request from the A.M.A. Public Relations Department.

The biographical material is suitable for publication in state medical journals and as a basis for newspaper feature stories about the president of the A.M.A. The material also is invaluable to medical societies in counties where Dr. Murray will be speaking during his year in office.

—A.M.A. Secretary's Letter



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**Research Needs Public
Support, Patience**

Patience, as well as financial and moral support by the public, is necessary if the great scientific advances of the last decades are to continue, a Chicago researcher recently stated.

Dr. Louis N. Katz criticized the "ballyhoo" now surrounding scientific research and the too-frequent demand that "one new fact be returned for each quantum of dollars invested." Great discoveries are not delivered on call; they evolve through the deliberate activity of a creative mind, Dr. Katz said in a recent issue of the *Journal of the American Medical Association*.

Everyone is familiar with the great advances in many fields of medicine, which have replaced fear with hope. This is due, he said, to the investigators and to the public support of research.

Such advances will continue to be forthcoming, as they have in an ever-increasing stream during the last few decades, if the public will "utilize its energies to help recruit the creative minds, to prepare the proper climate for their work in terms of space, equipment, assistants, funds, and social acceptance, and then sit back and patiently await results," he said.

Because industry has been successful by harnessing men together on an assembly line, many people believe that research results can be accomplished in the same way, but this is not true, Dr. Katz said. Researchers must have the assurance that they will have long-term support and that they will not have to fit into "the tight corset of a project application."

Production in research is becoming one of the most common measures of a man's ability and right to advance. Sometimes this measure is weighed by the number of papers written and not by the quality of them. This emphasis on output sometimes influences the amount of support an institution receives, which in turn affects its size. Unfortunately, he said, bigness is becoming confused with goodness, with too many people judging an institution by its size rather than by the attainments of its scholars.

In addition, research men work today in a fish-bowl, with their reports avidly inspected by the lay press, radio, television, and magazines. Others are "helpless victims of publicity" because the institutions in which they work feel they must "sell the public" on the work being done.

Dr. Katz also criticized the current approach in research of first building an elaborate plant and acquiring tools, and then "madly searching" for ideas. The ideas must come first, followed by the acquisition of the proper research tools.

Part of the trouble lies in the current use of project grants, which demands that an investigator outline in advance his aims and expected accomplishments. Research is not that simple and cannot

(Continued on Page 42)

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Research Needs Public Support, Patience

(Continued from Page 38)

be compartmentalized in "short-term packages," he said.

He called for public support of long-term investigations without demanding immediate results and for the encouragement of persons already in the field of research and of those wishing to enter it.

"Only in this way will we continue to maintain a crop of dedicated investigators who can concentrate on their research and thereby continue to manufacture the new products so necessary for the practicing physician to meet the needs of his patients, so vital to cure disease, and ultimately, to eliminate and prevent it," he concluded.

Dr. Katz is in the department of cardiovascular research, Michael Reese Hospital, Chicago.

Cleft Palate Correction Requires Teamwork

A group of specialists working together can produce the best results in correcting a cleft palate or lip, according to an editorial in a recent issue of the *Journal of the American Medical Association*.

In addition to surgery, to correct the deformity itself, corrections of teeth, speech, or psychologic problems are sometimes necessary. A plastic surgeon working alone cannot be expected to know exactly when and what other corrections are needed, but a team working together assures that "the right thing is done by the right person at the right time," the editorial said.

The team should consist of the surgeon, a pediatrician, otorhinologist, pedodontist, orthodontist and dental prosthetist, psychologist, speech therapist, social worker, and nurse.

(Continued on Page 50)



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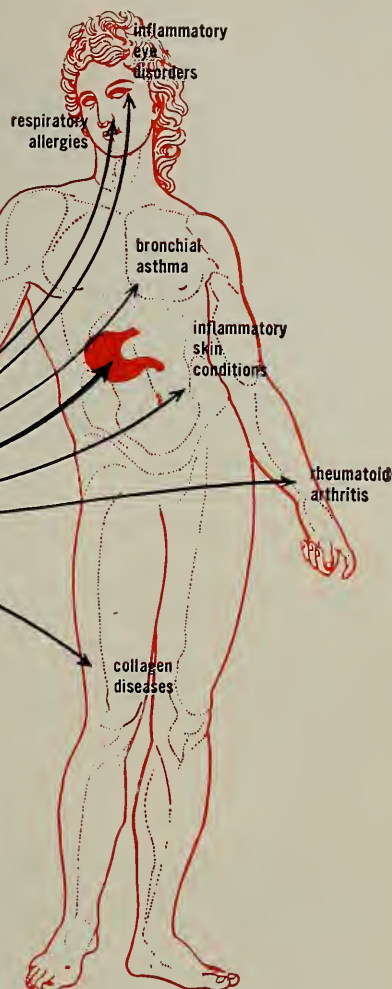
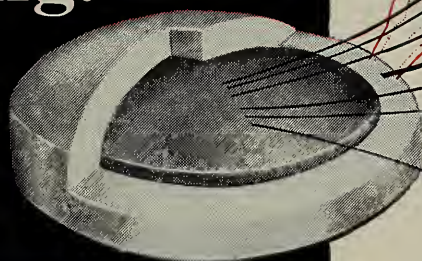
*Steigmann, F., and Goldberg, E.: Ambulatory Continuous Drip Method in the Treatment of Peptic Ulcer, *Am. J. Digest. Dis.* 22:67 (Mar.) 1955.

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Physician Suggests Lifetime Personal Health Book

A lifetime personal health log—a sort of cousin to the traditional baby book—was suggested recently by a Chicago medical school professor.

Dr. Carl A. Dragstedt, professor of pharmacology at Northwestern University Medical School, made his suggestion in a signed editorial in a recent issue of the *Journal of the American Medical Association*.

"What everyone in this country needs," he said, "is a good personal health log. By that I mean a suitable booklet in the permanent possession of everyone, in which would be recorded some of the important aspects of his health record, encompassing items from his family history, and data on such things as his vaccinations and inoculations, his diseases and operations, his blood pressure, blood cell counts, and similar laboratory findings. It would be for him, and all of his contacts with hospitals and physicians, somewhat comparable to a permanent passport for travelers. Upon consulting a physician or entering a hospital, he would submit his health log. This would save considerable time now consumed in taking his history and would have the added advantage of being much more accurate and reliable than the frail memory of an anxious patient. Upon the termination of his illness, the log would be returned to the patient.

"The American citizen pays a considerable amount of money to get well and to keep well . . . Upon settling up with his hospital or his doctor, the patient's log would be returned to him, brought up-to-date as to salient items regarding what was found and what was done. As it is, I dare say that for a great many people in the United States there is much information that has been gathered incident to sicknesses, hospitalizations, and periodic health examinations that is scattered amongst various hospitals and doctors' offices and becoming more and more inaccessible with time."

Dr. Dragstedt said the book should be durable enough to last a lifetime and should be about 4 by 7 inches in size, so it could easily be kept with other books on a shelf and yet be carried on occasion in the pocket or purse. Dr. Dragstedt thought that agreement on exactly what should be included in the book could easily be worked out.

Almost every baby born in the last 10 years has been launched with a baby book, which has space for information about inoculations and vaccinations. They have proved "extremely serviceable" during the childhood years, but in few instances have they been continued, he said, concluding:

"The idea of the log book is thus not entirely new, but is merely an extension and amplification of one that seems to have worked rather well in a limited field.

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(Continued from Page 48)

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(Continued on Page 66)



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Cleft Palate Correction Requires Teamwork

(Continued from Page 42)

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Some degree of cleft lip and palate occurs in about one of 850 live births. Almost every conceivable cause, including heredity and dietary deficiency of the mother, has been suspected of producing the deformity, but in most cases with "scant evidence."

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operation. Some advocate that it be done between the ages of four and six weeks; others at the age of one year, and others between the ages of 18 and 24 months.

"Because many factors are involved, no simple formula can be offered and the type of operation and time of its performance must be determined for each individual," the editorial said, concluding that:

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Influenza: Theme and Variations

C. H. ANDREWES, M.D., F.R.C.P., F.R.S., London

THE THEME OF THIS PRESENTATION is the influenza virus and its antigenic structure. Its structure varies in a remarkable way and the variations played upon the theme may be of vital importance to understanding of the disease and to success in controlling it.

All physicians know influenza and how hard it may be to define clinically. There are fever, aches of head, of back, of limbs, malaise and varying degrees of involvement of the upper respiratory tract. For general practitioners "flu" is a convenient name for infections of this sort. Physicians generally are also aware that periodically, at least in Europe, roughly every two years, influenza is likely to attack very large numbers of people at once and to cause much disturbance to our daily life. When this happens, it is nearly always influenza virus *A* that is the culprit. For over 20 years now we have been able to recognize this virus by laboratory tests and to find out how much of "clinical flu" it in fact causes. Influenza virus has proved remarkably convenient for laboratory study and has been a more useful tool for theoretical studies of viruses than any other animal virus.

Many virus infections leave behind them a life-long immunity: These are the exanthems and other viruses which during their attack get into the bloodstream. If they ever try to renew their onslaught, they find antibodies in the blood waiting to repel them. Viruses affecting the upper respiratory tract make their attack directly against mucous mem-

branes and do not have to enter the bloodstream to do so. True, some antibody does make its appearance in the mucus covering the epithelium, but it is usually in smaller quantity than in the blood and is less effective. That is probably one reason why respiratory viruses can affect us more than once. In the case of influenza, however, there is another reason. Antibodies in mucus and other defense mechanisms are not wholly ineffective and a "flu" epidemic probably comes to an end as a result of rising herd-immunity. This duly wanes and apparently sinks to a critical level in about two years. Then, that virus which is antigenically a little bit abnormal, stands a greater chance of overcoming resistance and becoming the ancestor of the virus strains of a new epidemic.

In its behavior in the laboratory, influenza virus shows itself similar in many respects to the virus of mumps. Yet epidemiologically they are poles apart. So far as we know, all mumps viruses are antigenically alike; mumps engenders life-long immunity; it is endemic, at most locally epidemic and does not show regular periodicity. Measles commonly has, like influenza, a two-year periodicity, but for a very different reason: It takes just so long for a susceptible population of sufficient size to grow up.

The periodicity of influenza seems to be linked with emergence of antigenic variants, yet not inevitably so, for it does sometimes happen that a similar strain will turn up in two successive epidemics. "New" virus strains may differ to a greater

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* Presented before the California Academy of Medicine at San Francisco, December 10, 1955.

or lesser extent from earlier ones and it may be that variations in the magnitude of the change determine the fact that the intervals between epidemics are not perfectly regular.

Let us briefly consider the nature of the changes which take place amongst "flu" viruses. Although these are very plastic and variable as regards many properties, the changes interesting us now are those concerned with antigenic structure. These are revealed by the hemagglutination-inhibition test. Influenza viruses are readily adsorbed to erythrocytes in fowls and other animals and readily form bridges connecting adjacent erythrocytes and causing their agglutination. Viruses neutralized by antisera are not so adsorbed and do not agglutinate erythrocytes. The activity of sera in thus inhibiting hemagglutination forms the basis of quantitative analysis of their make-up. Further refinements are introduced by using antibody-absorption techniques.

It is easy to show that the two influenza viruses *A* and *B* are serologically unrelated, and that greater or lesser degrees of kinship exist amongst *A* strains isolated in different years. The changes in the virus are important, first in giving us insight into the truly fascinating epidemiologic features of the disease, and second in relation to the question of vaccination. For both these reasons it seemed essential to study the vagaries of influenza on a world-wide basis.

In 1947 the World Health Organization (WHO) set up a network of influenza laboratories based on a World Influenza Center at the National Institute for Medical Research in London, and on a similar laboratory in New York. The idea was this: That information as to the doings of influenza all over the world should be collected at these laboratories and at WHO in Geneva; and that strains should be collected, studied and distributed, so that we could gain knowledge of the relation between antigenic changes and epidemic behavior. A particular question, also, required an answer: Do "flu" epidemics really travel from country to country as appears on the surface, or do outbreaks, arising intrinsically within a country, happen in succession, giving an appearance of geographical spread?

It will help us to answer this question if we consider the history of influenza since, in 1933, the virus was first transmitted to ferrets and so made amenable to study in the laboratory. Things have changed a lot since 1933. We use ferrets very little now, mainly to make antisera. As new techniques have been developed, we have seen interest transferred to mice, to amniotic and allantoic cavities of eggs, and to hemagglutinin tests *in vitro*; and finally it has been reported that viruses can be more readily isolated in tissue cultures of human or monkey kidney than by any other means.¹⁹

Viruses from the earlier years of "flu" research, that is 1933 to 1943, were isolated in ferrets and then adapted to mice. These procedures are now thought possibly to affect the antigenic stability of "flu" viruses. We cannot therefore say with confidence anything more than that those strains were very distinct from those of later years. In 1943 a vaccine trial made in the United States gave results indicating a possible four-fold reduction in "flu" incidence in vaccinated groups compared with controls.⁷ Unfortunately, in California the results were less satisfactory than in the rest of the country.⁶ We all hoped that control of influenza by vaccines was in sight. But, alas, the next trial, in 1947, showed hardly any benefit at all from vaccination either in Britain¹⁸ or America.⁸ It soon appeared that a new antigenic type had appeared and was dominating the scene. It had first shown itself in Australia in 1946, but by 1947 was widespread both in North America and Europe. Being so different from the old *A* strains, it was christened *A*-prime (*A'*). This name was, for a number of years, a useful one, as it served to distinguish the older from the newer virus strains. It has, however, outlived its usefulness, for influenza *A* viruses have been progressively changing in their make-up, both before and after 1947, and there is no particular merit in arbitrarily giving a special designation to post-1947 viruses. All are *A* viruses and their changes will doubtless go on. A WHO Expert Committee recommended that prevalent strains of different years should be grouped around a suitable representative, such as FMI of 1947, and referred to as of the such-and-such type. Heaven preserve us from *A*-double prime . . . octuple prime, and so on!

Soon after the World Influenza Center got started, an epidemic of influenza broke out in Sardinia and soon "spread" to the mainland of Italy and right across Western Europe, even up to Iceland (Chu, Andrewes and Gledhill, 1950).⁴ Strains received at the Center in London were of one serological type and it was hard to avoid the conclusion that one was witnessing spread of a particular virus infection. This was in the winter 1947-48. In 1948-49 we had the usual welcome absence of an outbreak, and then in 1950-51 another one came along. This showed several interesting features. The main outbreak was preceded, in May 1950, by a late spring local prevalence in Sweden. Nothing was detectable in Scandinavia between June and September, although a special watch was kept; but it was in Scandinavia—Denmark and Sweden—that the main epidemic began in October 1950. Viruses isolated then were of the same serological type as in the flurry of the previous May. Britain apparently had what we may call two concurrent epidemics that year, for a week or two after the Scandinavian virus

hit us, a particularly virulent form of influenza appeared in Liverpool and Belfast and killed many elderly and infirm people. The virus responsible was of a different serological type from the Scandinavian. We named it Liverpool type. This type prevailed in countries bordering the Mediterranean, and subsequently crossed the Atlantic to cause such "flu" as you had in 1951. Our laboratory studies revealed that this Liverpool virus had been present some months ahead of the outbreak in Australia and South Africa. Possibly it had been incubating in the southern hemisphere's winter, ready to cross the equator for its winter sports in Europe. Our experiences in 1951 made us suspect that both of two rival theories of the origin of "flu" outbreaks might be true. The Scandinavian virus must, we felt, have been latent in Scandinavia during the summer, waiting for the right stimulus to activate it; then it must surely have spread across the North Sea and elsewhere, just as the Liverpool type apparently came up from across the equator.¹¹

In 1953 came our next influenza experience, and now the pattern was still harder to define. The viruses we received at the Center were of the same types as in 1951, some much like the Scandinavian, others indistinguishable from the Liverpool, but there was much more suggestion of activation of latent viruses and less of orderly spread. Influenza appeared almost simultaneously in Europe, North America and Japan and the main viruses in all three places were of the Scandinavian type. From a few countries, notably Portugal, we obtained predominantly Liverpool type viruses, but the Liverpool one seemed to be on the way out, and the Scandinavian on the way in.¹³

In the spring of 1955 we expected another major influenza *A* wave in Europe, but it did not come. What "flu" we did have was due to virus *B*. Quite late in the spring, however, odd *A* cases began to turn up—in southern Ireland, South Wales, a few in England; and we had strains from Albany, New York, and from India. From all the places I have mentioned we obtained similar viruses of a rather new type, although there were some of the Scandinavian type as well and a lone Liverpoolian from Lisbon. These small spring outbreaks soon subsided. If we follow the precedent of 1950-51 and of several other years, we may expect outbreaks somewhere this coming autumn and they may very well prove to be due to this (1955) type.

If this guess proves correct, our attention will be drawn once again to a puzzling phenomenon. Here we have the same, or very similar, new types of virus turning up simultaneously in such far distant places as Albany, New York, Ireland and India; turning up, moreover, in the absence of a widespread outbreak. We might explain it on one of

two hypotheses, both of which need careful attention.

1. Hypothesis of Independent but Similar Mutation

Numerous investigators have noted that if influenza viruses are cultivated in eggs in the presence of doses of antiserum insufficient to neutralize them completely, the viruses will change in their properties. This change may turn them into what Dutch investigators call *Q*-variants, the reactivity of which against all antisera has been reduced (van der Veen and Mulder, 1950).²³ Such a change, it has been suggested, may occur naturally to influenza viruses at the tail-end of an epidemic when herd resistance is high, and a virus may emerge having greater possibilities of survival during hard times. My colleague, Isaacs, suggested that viruses in the *Q* phase may be turned inside out, so that their more reactive antigenic component is in the middle and some blander, more inoffensive constituent faces the outside environment (Isaacs, Depoux and Fiset 1954).¹²

Magill¹⁷ recently (1955) reported that by passing viruses in partly immune mice he can obtain antigenic variants which are not merely *Q*-variants but have their antigenic make-up radically altered. There is even a suggestion that if a strain is passed in mice made immune to more than one old strain, its mutation can be pushed in a novel direction, with resulting emergence of a virus resembling that causing a later epidemic. This suggests wild ideas of being able to presynthesize, as it were, in the laboratory the virus which is going to cause the next epidemic and the next epidemic but one. We should then, indeed, be able to be ready with the right vaccines. The idea, however, implies that a novel mutation imposed upon a virus by an unfavorable environment of resistant hosts must go in one particular direction; that a particular antigenic make-up, *Y* is a necessary evolutionary next step following the collapse of its predecessor, *X*. If this were so, it would be easy to see why, as the Liverpool type of virus receded, the Scandinavian one "took over" simultaneously in America, Europe and Japan in 1953. Also why a new type independently appeared simultaneously in Albany, Ireland and India. Yet I confess I find it hard to believe in "chemical evolution" of influenza viruses over a period of years in an inevitable, predetermined direction. The coexistence of similar strains over the whole world is, however, an undoubted fact, and one can hardly imagine that they have evolved quite independently.

2. Hypothesis of Underground Spread

One has, therefore, to consider another possibility. We do not know where influenza *A* virus

persists between epidemics. Most people believe it goes, metaphorically speaking, "underground." It is rarely recovered from "flu"-like illnesses between epidemics. There is a strong suggestion, however, that it can persist in an area without causing outbreaks. I have mentioned the 1950 May outbreak in Scandinavia, followed by a big epidemic starting in the same area the following October and due to a similar virus. One can hardly doubt that the virus was somewhere, locally, "underground" between May and October. More concrete evidence is supplied by Jordan and co-workers¹⁵ in Cleveland who had a population kept under close observation and obtained specimens of serum at intervals. They detected, in individuals, rises in antibodies against influenza A occurring in the absence of "flu" outbreaks or even in the absence of clinical illness in the persons concerned. Now, if influenza can cause such inapparent infections and if we believe, as I think we must, that between epidemics it is in an altered relatively avirulent state, can we imagine that it can nevertheless spread widely? In fact, can a new type of virus travel "underground" from India to Ireland and Albany and be thus widely seeded, ready to cause another epidemic when the time is ripe? If we believe this, we may as well believe that an epidemic such as that spreading across Western Europe in 1948-49 was due to a virus previously seeded across the continent and successively activated in different countries, not spreading in the epidemic form. I do not, honestly, care very much more for my second hypothesis than for my first; it would seem much easier for a virus to spread actively as an epidemic than to crawl about underground doing nothing in particular.

I therefore put forward a third hypothesis which seems to me better to cover the facts. I can believe that in the face of a herd specifically resistant to it, antigenic change in a virus is likely to go, for at least one step, in a particular direction, yielding a particular variant. What I cannot believe is that one could foresee a whole succession of steps along a preordained line, causing parallel evolution of viruses all over the world for a number of years. Again, I can believe that virus goes underground and perhaps does so all over the world, causing odd subclinical infections and not much more, but able to become active and epidemic when the time is ripe. But again, I cannot believe that in this emasculated condition it can effectively spread from India to Ireland and Albany. Indeed, Jordan, in the studies just cited, found no suggestion, from serological studies, that there was such a thing as an epidemic of subclinical influenza.

There is, I suggest, an escape from our dilemma. The virus must be able to loose itself from its re-

straint and get going in epidemic form, with difficulty and infrequently. Thus, it apparently failed to do so anywhere for the great part of the 1954-55 winter. Yet, when it does loose itself, it ravages a large part of the world within a few months. Let us accept what we see at its face value and admit that the country-to-country spread is a genuine phenomenon. It ensures that over a large part of the globe the population is well seeded with one, or a very limited number, of antigenic types of virus. In due course the outbreaks subside and virus persists, if at all, in a relatively avirulent state. Again, in due course, circumstances come to favor an epidemic, and the virus strains which are able to initiate one will be those which have undergone antigenic variation. In populations having in their sera a given antibody-spectrum against older "flu" viruses, the direction of mutation may, for one step, be similar in various places, and thus it is not surprising that similar new antigenic types turn up in Ireland, Albany and India. Some one or more of these gets started earlier or shows greater powers of spread and a new epidemic starts. Other slightly different mutants may arrive here and there but they will be swamped by the flood of the one or few really successful strains, and thus will be preserved in the antigenic make-up of our influenza A viruses the world harmony that we should like to see in other fields. To offer an analogy from the bacteriology laboratory, all bacteriologists know that on plating a specimen on ordinary agar plates they may obtain a mixed culture of all sorts of organism; but let there be one "swarmer" such as *Proteus* and everything else will soon be swamped and next day a loopful taken at random will give *Proteus* in almost pure culture. It is a pity that influenza virus A is so likely to look upon whole continents as agar plates prepared for its benefit.

Undoubtedly variants of influenza virus do turn up which lack what it takes to start an epidemic. Odd strains reach our laboratories in London at times—we had one from Japan, for instance in 1953—strains standing well apart from others in their antigenic characters, and yet we hear no more of them. They either lack power to spread or power to persist when things are against them, or they are smothered soon after birth by a really efficient rival strain.

Just as some new variants fail to survive, so we must explain the apparent extinction of older strains by the very successful competition offered by the really successful "spreaders." Claims to have isolated in recent years viruses like the old classical W.S. and PR8 strains can be accounted for by the

unfortunate facility which laboratory strains have for turning up as "contaminants." Fortunately, these old strains have characteristic "markers," particularly their virulence for mice, so that fallacies can be readily recognized.² There is no good evidence that *A* strains like those of ten or more years ago are current at present.

This brings me to considering some very important results from Ann Arbor, from Francis, Davenport, Jensen and their colleagues. It has been known since the earliest days of work with "flu" viruses that the serological response to infection was, in children, much more specific than in adults. Children would produce antibodies almost only to the currently infecting strain, adults to all sorts of strains. Davenport⁵ and co-workers (1953), studying the matter more deeply, have confirmed these results and carried them further. They have propounded what they call "the doctrine of original antigenic sin": They adduce evidence that human beings produce good antibodies to the "flu" virus they first encounter; on subsequent contact with dissimilar viruses they tend to show an antibody rise to the virus they first met and to respond comparatively much less to the new virus. Even when a response to vaccination is concerned, antibody tends to rise especially high against the virus of the original antigenic sin or contact. From examination of sera of different age groups, one can thus read, as it were, the history of influenza, finding, for example, high antibodies against PR8 in persons over ten years of age and very low antibodies to that strain in young children. Conversely there will be the best antibodies to modern strains in children.

It was suggested long ago by Laidlaw and by Shope that the virus of the 1918-19 pandemic was antigenically like Shope's swine-15 strain of swine influenza. You will recall a suggestion that pigs in the Middle West first contracted swine influenza as a result of contact with the human pandemic virus in 1918. It is thus especially interesting that antibody to swine "flu" is particularly pronounced in people who were exposed in 1918. We noted this, in Britain, in 1935,¹ although we were later more dubious about the interpretation of the results. The Ann Arbor workers, however, now strongly support the original thesis.

These findings have a bearing on the "directed mutation" of newly arriving influenza viruses. Magill¹⁷ found that if a "flu" virus were passed in mice partly immune to itself, there was a tendency to revert to an *older* antigenic pattern. If, however, he made mice doubly immune to the current and to the older strain, there was more likelihood that the virus would launch out in a new direction. Today a newly emerging virus will find that younger people have antibody to recently prevalent antigens, while

different groups of older people will have sera reactive against various strains of varying degrees of antiquity. It will thus be able readily to attain epidemic status, only if it can spread freely in people having antibodies to none of the recently prevalent antigens. Clearly, however, it might turn in a circle and hypertrophy an old antigen once the population resistant to that antigen had died out. Francis,⁷ discussing such possibilities in 1945, expressed delight with what he called a "splendid basis for the classical notions of the periodicity of influenza."

It is noteworthy that swine influenza viruses in the Middle West have not changed antigenically as greatly as human viruses have.¹⁰ This might be because the economics of pig-breeding insure that pigs immune to the virus do not survive to hamper the spread of virus in the herd; and the virus is thus not under compulsion to keep changing its antigens.

Here we must pause, lest we be carried along too enthusiastically. People have always been able to perceive an orderly periodicity in influenza epidemics if they have only looked backward; they have rarely been so successful in forecasting the future. There could well be a regular periodicity in the antigenic make-up of successive influenza viruses, having interest only for the laboratory man and of no readily apparent clinical significance. The 1918-19 influenza virus had remarkable properties, particularly the ability to kill young adults instead of the extremes of age as do most "flu" viruses. There is no evidence at all that this property was necessarily tied up with any particular antigenic structure. The 1918 influenza *may* have been antigenically close to swine "flu" virus and that antigenic make-up may one day recur in our human viruses without any return to the catastrophe of 1918. Indeed man is constantly exposed to such a virus, if he raises pigs in the Middle West; and yet he does not apparently catch "flu" from his pigs at all.

We also need to understand more about the significance of cross reactions in antigenic studies of influenza viruses. Jensen and Francis¹⁴ (1953) suggested that there is a small finite number, perhaps eighteen, of "flu" antigens. It is suggested that all the antigens are present in all influenza strains, some in small quantity or deeply buried, one or few at a time being dominant. The conclusions are based on absorption techniques, the significance of which has been disputed by other workers (Takátsy and Fürész,²¹ 1954). Now that we have had experience of viruses with dominant antigens of these eighteen types, we are, according to the argument, about due to go back to the beginning again.

My colleagues and I feel much more hesitant about interpreting these findings. We feel less convinced that all the past antigens are present in current strains and that no new ones are appearing. We are disposed to wait and see if influenza variation proceeds indefinitely in a straight or sinuous line, or travels in a circle which is due to come round to its starting point fairly soon or not for many many years.

One's ideas on these matters are not purely academic; they influence policy in the matter of the composition of influenza vaccines. The successful use of influenza vaccine in the United States in 1943 raised strong hopes for the future—hopes which the failure of vaccines in 1947 dashed to the ground. Few doubt that the failure was due to the unusually large antigenic changes which virus *A* underwent about 1946-47. At discussions in Britain, we decided that the best hope was to make our vaccines from the very latest strain available plus the latest-but-one. With the appearance of a new type this would be incorporated and the older of the existing two strains dropped. The policy in the United States has been different. It is felt by Francis and his colleagues that a vaccine composed of many antigenic types old and new should give coverage against anything likely to crop up. Which policy one favors will depend not a little on the views one holds as to the structural make-up of virus *A*, the nature of the changes it undergoes and their likely future course. In Britain we are at the moment undertaking a field trial which we hope will decide whether a univalent or bivalent vaccine of recent strains will give better protection than what I will call an American cocktail. A decisive result would give most valuable guidance for the future. It is of course much easier for manufacturers to prepare vaccines from mixtures of old and trusted strains; but if we can only prevent influenza by incorporating new strains, then that is what has to be done.

It is my hope that this presentation will convince readers that time-consuming and intricate studies of the antigenic make-up of influenza viruses have a real practical importance: They may help us to

understand what is epidemiologically a unique and fascinating disease; and they may help us to prevent it from too greatly harming us. Above all, we may learn what to do to prevent a recurrence of what, only 36 years ago, was the most killing plague mankind has ever known.

REFERENCES

1. Andrewes, C. H., Laidlaw, P. P., and Smith, W.: *Brit. J. Exp. Path.*, 16:566, 1935.
2. Andrewes, C. H., Glover, R. E., Himmelweit, F., and Smith, W.: *Brit. J. Exp. Path.*, 25:130, 1944.
3. Archetti, I., and Horsfall, F. L.: *J. Exp. Med.*, 92:441, 1950.
4. Chu, C. M., Andrewes, C. H., and Gledhill, A. W.: *Bull. World Hlth. Org.*, 3:187, 1950.
5. Davenport, F. M., Hennessy, A. V., and Francis, R.: *J. Exp. Med.*, 98:641, 1953.
6. Eaton, M. D., and Meiklejohn, G.: *Amer. J. Hyg.*, 42:28, 1945.
7. Francis, T.: *Amer. J. Hyg.*, 42:1, 1945.
8. Francis, T., Salk, J. E., and Quilligan, J. J.: *Amer. J. Publ. Hlth.*, 37:1013, 1947.
9. Gompels, A. E. H.: *J. Gen. Microbiol.*, 9:140, 1953.
10. Isaacs, A., and Andrewes, C. H.: *Brit. Med. J.*, 2:921, 1951.
11. Isaacs, A., Gledhill, A. W., and Andrewes, C. H.: *Bull. World Hlth. Org.*, 6:287, 1952.
12. Isaacs, A., Depoux, R., and Fiset, P.: *Bull. World Hlth. Org.*, 11:967, 1954.
13. Isaacs, A., and Archetti, I.: *Lancet*, 2:457, 1954.
14. Jensen, K. E., and Francis, T.: *J. Exp. Med.*, 98:619, 1953.
15. Jordan, W. S.: Personal communication cited by Dingle, J. H.
16. Laidlaw, P. P.: *Lancet*, 1:1118, 1935.
17. Magill, T. P.: *J. Exp. Med.*, 102:279, 1955.
18. Mellanby, H., Andrewes, C. H., Dudgeon, J. A., and Mackay, D. G.: *Lancet*, 1:978, 1948.
19. Mogabgab, W. J., Green, I. J., and Dierkhising, O. C.: *Science*, 120:320, 1954.
20. Shope, R. E.: *J. Exp. Med.*, 63:669, 1936.
21. Takatsy, G., and Füresz, J.: *Acta Microbiol. Hung.*, 2:105, 1954.
22. Takemoto, K. K., Lynt, R. K., Rowe, W. P., Huebner, R. J., Bell, J. A., Meller, G. W., and Davis, D. J.: *Proc. Soc. Exp. Biol.*, N. Y., 89:308, 1955.
23. Van der Veen, J., and Mulder, J.: Studies on the antigenic composition of human influenza virus, Stenfort Kroese, Leiden, 1950.

The Treatment of Cancer of the Thyroid Gland

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CARCINOMA of the thyroid gland is relatively uncommon. According to the most recent available statistics reviewed by Dorn and Cutler,⁶ the age adjusted incidence of cancer of the thyroid gland in the United States each year is approximately 1.1 per 100,000 males and 3.4 per 100,000 females. In other words the incidence is about 2.3 cases per 100,000 population per annum. Sokal,¹⁴ after an extensive review, also estimated the incidence at approximately this figure.

The usual sex ratio of thyroid cancer is three cases in females for every one in males.

In adults with nodular goiter the incidence of thyroid cancer is stated at widely different rates, ranging from about 0.2 per cent of patients with nodular goiter according to Sokal, through 4.8 per cent of such patients according to Queen,¹³ up to as high as 20 per cent according to some surgical observers.¹⁵ Since the latter usually base their data largely on patients operated upon, while other investigators use data based on a theoretical "total" population sample, it would appear that the true incidence of thyroid cancer in all adults with nodular goiter is distinctly less than four per cent. Sokal expressed belief that thyroid cancer arises more frequently in toxic than nontoxic nodular goiter (the respective percentages being 1 and 0.2). Other observers do not concur. There has been a considerable divergence of opinion as to the incidence of cancer with regard to whether there is a solitary nodule or multiple nodules on the thyroid gland. However, since surgical and microscopic examination of thyroid glands with so-called solitary nodules usually reveals the presence of additional or multiple nodules, this aspect of the problem will not be considered further herein.

The incidence of thyroid cancer in children with nontoxic nodular goiter is reported by Winship¹⁸ to be almost 30 per cent (that is, of those children coming to operation); it is presumably lower in children in general who have that disease, but the exact figure is not known.

PATHOLOGIC CLASSIFICATION

There are almost as many pathologic classifications of tumors of the thyroid gland as there are

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• The optimum treatment for cancer of the thyroid depends on (a) the pathological type of tumor present and (b) the stage of the disease.

In patients with well-differentiated papillary carcinoma, simple operation is usually adequate. In cases of most other types, more extensive operation, followed by adequate postoperative radiotherapy, is regarded as the treatment of choice. In terms of clinical stage, the primary treatment of most cases classified as Stage I or II should be surgical, and of most cases classified as Stage III or IV, radiological.

The five-year survival rate in a series of non-terminal cases treated under such a program was 47 per cent.

Persistent treatment of selected inoperable or metastatic lesions may result in unexpectedly long survivals.

reports in the literature. For several years the rather detailed classification of Warren was commonly used. Ackerman¹ modified Warren's classification essentially as follows:

- I. Tumors of low or potential malignancy.
 1. Adenoma with blood vessel invasion (fetal adenoma).
 2. Papillary cystadenoma with blood vessel invasion.
- II. Moderate degree of malignancy.
 1. Papillary adenocarcinoma.
 2. Alveolar adenocarcinoma.
 3. Hurthle cell adenocarcinoma.
- III. Higher grade malignancy.
 1. Small cell carcinoma (carcinoma simplex).
 2. Giant cell carcinoma.
- IV. Miscellaneous types.
 1. Epidermoid carcinoma.
 2. Fibrosarcoma.
 3. Lymphoma.

Bell² and others stressed the fact that there are no dependable microscopic criteria for the diagnosis of malignant adenoma. Bell noted that some investigators observed that malignant adenoma recurs in only about 3 per cent of cases even though the tumor may have invaded veins.

In recent years there has been a tendency to classify carcinomas of the thyroid gland as follows:

1. Papillary adenocarcinoma (tumors with papillary or predominantly papillary pattern). Many of these are well differentiated.

2. Follicular adenocarcinomas (tumors with follicular or predominantly follicular pattern — formerly called alveolar).

3. Undifferentiated carcinoma (including tumors which formerly carried such headings as small cell, giant cell, spindle cell and solid carcinomas).

There are of course other primary malignant lesions of the thyroid gland such as epidermoid carcinoma, oxyphilic (or Hurthle cell) carcinoma, malignant lymphoma and sarcoma. These are relatively uncommon. In addition, there are malignant tumors metastatic from other sites, notably the breast and lung, which may be mistaken clinically for primary thyroid cancer even by the most wary.

The approximate incidence of the different pathologic types varies in different reported series. In general, it would appear that tumors of low grade malignancy constitute about 55 per cent of malignant thyroid tumors; those of moderately good differentiation, including follicular tumors, average perhaps 30 per cent of all thyroid cancers, while those of undifferentiated type or high degree of malignancy average about 15 per cent. It is noteworthy that in reports from some surgical clinics, the undifferentiated group accounted for less than 8 per cent of the series treated, while in reports from some radiotherapeutic clinics this undifferentiated group accounted for as high as 51 per cent of the cases treated. It is therefore evidently impossible to compare the overall results of treatment in different institutions in the absence of knowledge of the relative number of the different pathologic types treated.

Winship and Chase¹⁸ recorded the following pathologic types in a collected series of 596 cases in adults studied in recent years (they are listed in the order of increasing malignancy):

Cell Type	Per Cent
Papillary adenocarcinoma	15
Papillary and follicular adenocarcinoma.....	46
Follicular adenocarcinoma	17
Oxyphilic adenocarcinoma	3
Undifferentiated adenocarcinoma	18
Lymphoma	1

In about two-thirds of the mixed papillary and follicular tumors, the papillary type predominated; in the other one-third, the follicular type (which sometimes accepts therapeutic amounts of radioiodine) predominated.

STAGING

Clinical staging of tumors has moderate value both for the planning of treatment and for the estimation of prognosis, notably in the case of cancers of the uterine cervix and the breast. Staging

based on clinical and microscopic observations is of value in dealing with tumors of other sites such as the fundus uteri. There is considerable divergence of opinion in the literature as to the value of staging in thyroid cancer. Some investigators, Winship¹⁸ among them, regard staging as of more importance than the histologic type in estimating prognosis; other observers have the opposite opinion, Jacobson⁸ proposed the following staging based on the clinical and microscopic observations at the time of surgical exploration carried out in patients with thyroid "lumps":

1. Movable tumor without known metastasis.
2. Movable tumor, with mobile unilateral node metastasis.
3. Fixed tumor, or tumor with bilateral or fixed node metastasis.
4. Patient with distant metastatic lesions.

The limitations of either microscopic or macroscopic staging is well illustrated by Ward's¹⁶ prognostic summary:

Five-year survival rates based on clinical and surgical observations:

	Per Cent
1. Carcinoma diagnosed or suspected preoperatively	20
2. Carcinoma diagnosed at operation (gross) ..	40
3. Carcinoma diagnosed first on microscopic examination	80

Kearns and Davis⁹ expressed belief that the histologic appearance of the tumor contributes little to the prognosis. All agree that some relatively well differentiated papillary tumors progress to a fairly early fatal outcome, while occasional undifferentiated tumors are associated with unexpected longevity. Crabtree and Hunter⁴ said that "Deaths from cancer of the thyroid are directly proportional to the ease of clinical diagnosis (*i.e.* the stage) and the degree of anaplasia."

TREATMENT

The primary treatment of most cases of carcinoma of the thyroid is surgical, in order to provide both microscopic diagnosis and potential removal of the lesion. There is wide difference of opinion as to whether the operation should consist of relatively simple excision (lobectomy) or removal of the entire thyroid gland combined with radical neck dissection. Martin¹⁰ expressed belief in the value of thyroidectomy with radical neck dissection, the latter at least on the same side as the lesion. On the other hand, Crile⁵ and many equally experienced surgeons have expressed the opinion that radical neck dissection has not much to offer, pointing out that when metastasis to nodes is present in the case

of well differentiated papillary tumors, the nodes tend to grow slowly and remain with little change in size for many years. On the other hand when such metastasis is present (especially in the case of poorly differentiated tumors), the probability of the surgeon's being able to remove all the involved nodes is slight; many patients with metastasis to cervical nodes also have nodal involvement extending below the clavicle into the mediastinal or axillary areas. Surgical removal of mediastinal nodes has been attempted, but the condition of the patients after bilateral radical cervical and upper mediastinal node dissection is not a very happy one.

The general plan of treatment which the author believes to be wise may be summarized as follows (utilizing the previously described staging):

Stage I and II: Usually surgical. Then, if the tumor is microscopically well differentiated and apparently totally removed, no postoperative radiotherapy; but if the tumor is poorly differentiated or incompletely removed: radiotherapy.

Stage III and IV: Usually radiotherapy (after confirmation of diagnosis).

In general, the most effective way of irradiating the neck and adjacent tissues in the presence of inoperable carcinoma of the thyroid gland is by wide-field roentgen therapy.¹² In many cases a single large anterior field may be used, the field extending from approximately the hyoid bone down to the middle of the manubrium sterni. (The intrinsic larynx is shielded with lead.) Such a field includes both the cervical and upper mediastinal node groups. In suitably built patients, with "thick" necks, two lateral fields may be added. In selected patients, posterior oblique fields, aimed at the thyroid and its lymph node drainage area (but missing the spinal cord) may also be used.

In patients with widespread lesions of a follicular type, which accept radioactive iodine (perhaps 2.5 per cent of all patients with cancer of the thyroid gland) radioiodine should be used.

The usual plan of treatment is to attempt to deliver a midtumor dose of approximately 4,000 r in about four weeks, using orthovoltage radiation with a half value layer of 2 mm. copper.

It is believed that 4,000 r of 250 kilovolt radiation with the half value layer of 2 mm. of copper is biologically equivalent (in terms of effect on cancer in humans) to about 6,000 gamma roentgens from a telradium, telecobalt or megavoltage source. Most adult patients will tolerate this dosage to a wide field in a four-week period without serious permanent after effects. If heavier dosage to large areas is given, undesirable late sequelae are likely to occur. On the other hand, sharply localized persistent areas

of disease may sometimes be treated with small fields to a tumor dose of about 6,000 x-ray roentgens in four weeks, but cases suitable for such therapy are exceptional.

The radiosensitivity of thyroid cancer in the individual case cannot be predicted. It can only be determined by a trial of adequate radiotherapy. In general, it would appear that:

1. Most tumors of predominantly papillary type are moderately radiosensitive;
2. Tumors of predominantly follicular type are radiosensitive in about one-half the cases; and
3. Tumors of undifferentiated type are usually radiosensitive, but unfortunately incurable because of early generalized metastasis.

Metastatic disease in the lungs, bones, brain and distant node sites may be treated by roentgen therapy or radioiodine according to the nature of the case and the presence or absence of iodine-accepting tumor tissue. Unfortunately, only the adenocarcinomas with colloid formation (follicular tumors) take up enough radioiodine to be affected significantly, and even those that do accept the iodine do not take it up homogeneously.¹¹

In general, only about 50 per cent of patients with cancer of the thyroid gland have "operable" lesions when first observed (Cohen and Moore),³ and since it is exceptional to be reasonably sure that all of the tumor has been excised, careful postoperative radiotherapy should be carried out in most "operable" cases. The kind of tumor present is probably more important in the determination of ultimate survival than the extent of the operation or the intensity of the radiotherapy applied.

RESULTS OF TREATMENT

The author's personal experience with cancer of the thyroid gland is small: Between the years 1930 and 1952, 23 patients were observed in consultation at the San Francisco Hospital and 19 patients in private practice, a total of 42 cases of "validated" cancer of the thyroid gland.

The pathological classification and clinical staging of the patients were not uniform during this period. Indeed, there were 31 cases indexed as *carcinoma of the thyroid* in the San Francisco Hospital files up to 1952, but upon review it was noted that in eight of the cases the patient did not have primary thyroid cancer. These eight were as follows:

Carcinoma of the thyroid gland, metastatic from lung, one case.

Carcinoma of the thyroid gland, metastatic from an undetermined primary site, three cases.

Adenoma benign (reviewed diagnosis), two cases.
Error in tumor registry, two cases.

These eight cases are not included in the subsequent discussion.

The pathological classification employed at the time of preparation of this summary was as follows:

1. Papillary carcinoma and other well differentiated tumors (such as so-called malignant adenoma).

2. Adenocarcinoma, unspecified or moderately well differentiated.

3. Undifferentiated carcinoma (and carcinoma, type unspecified).

It is now apparent that this classification is neither as clear nor as logical as that listed previously in this paper. However, it will be used in presenting the results to date.

The staging was based on that of Jacobsson and was done retrospectively after a review of the clinical, surgical and microscopic records.

The treatment consisted of surgical operation alone in the cases of papillary tumors which had been apparently completely removed, of operation plus postoperative roentgen therapy in the other operable cases, and of radiotherapy alone in the nonterminal inoperable cases. The surgical operation was usually conservative (lobectomy). In some cases it consisted of biopsy only; in others, total thyroidectomy was done. The postoperative radiotherapy was moderately intensive in patients whose clinical condition permitted (the aim being to give a midtumor dose of about 4,000 x-ray roentgens in some four weeks' time). It was usually merely palliative or even only token in amount in the advanced or terminal cases.

Of the 14 patients known to have survived over five years, 11 received postoperative radiotherapy.

Of the 28 patients who did not survive five years (including the three cases in which follow-up information is not available), 15 received postoperative radiotherapy. Many of the group who did not receive treatment were in terminal stage. Some of them had little more than biopsy or tracheotomy.

Of the 15 adequately followed patients who were not in terminal condition when first observed, 11 received postoperative radiotherapy and four did not. The average survival time in both groups was quite similar (about 22 months) despite the fact that the patients given radiotherapy were a much less favorable group. Most of the patients referred for postoperative radiotherapy had obvious persistent or inoperable tumor; two of the four not referred were believed to have had successful removal of tumor, and the other two were found to have widespread metastatic lesions shortly after opera-

tion. Objective evidence of radiotherapeutic benefit included shrinkage of palpable masses, improvement in swallowing and decrease in size of radiographically visible lesions. The most frequent reason for ultimate failure was the undifferentiated nature of the tumor present.

Pathological classification of cases:

Type (see text)	San Francisco Hospital	Private Office	Total
Papillary carcinoma	5	6	11
Adenocarcinoma	4	5	9
Undifferentiated carcinoma	14	8	22

Clinical staging of cases:

Stage	San Francisco Hospital	Private Office	Total
I	4	2	6
II	2	7	9
III	5	7	12
IV	12	3	15

Record is available of 39 of the 42 patients either to death or for over five years. The three untraced patients are counted as dead of disease in the final tabulation, although in two of them the disease was classified as Stage I and they were living and well some years (but less than five years) after operation. In the other patient lost to follow-up before a full five years had elapsed, the classification was Stage II.

The five-year survivals according to pathologic type are as follows: Papillary carcinoma, eight of eleven patients; adenocarcinoma, moderately differentiated, two of nine cases; carcinoma, undifferentiated or unspecified, four of twenty-two cases.

It is known that long survivals in undifferentiated carcinoma of the thyroid gland are so rare as to raise reasonable doubt concerning the pathological classification of such cases. Only one of the four patients in this small series who survived for such a period had a diagnosis of undifferentiated carcinoma; the remaining three had unspecified or unclassified carcinomas, without clear information as to the predominant type of cell present.

The five-year survivals according to the clinical and microscopic stage of disease were as follows:

Stage I: Four of six patients are known to have survived; (two not traced).

Stage II: Six of nine patients are known to have survived; (one not traced).

Stage III: Four of twelve patients survived.

Stage IV: None of 15 patients.

It should be noted that two of the patients died not of thyroid cancer but of cardiac disease. However, they died within the five-year interval and theoretically might have had recurrence had they lived. Conversely, two of the patients who did survive five years, had recurrence after that time (one at six and one at seven years) and died of cancer.

In all, 14 of 42 patients (33 per cent) survived five years. Twelve of the 42, were actually in terminal condition on admission and died of cancer within a few weeks. Excluding this hopeless group (to which neither curative operation nor radiotherapy was applicable) 14 of 30 patients survived five years (47 per cent).

As was previously noted, three of these survivors were treated by surgical operation alone and 11 by operation and radiotherapy. The three treated by operation alone were as follows:

1. A man 40 years of age. Subtotal thyroidectomy for papillary adenocarcinoma (pathologically, malignant adenoma). No postoperative roentgen therapy. After five years recurrence developed in neck and then bony metastasis. Palliative roentgen therapy was given. The patient died in the sixth postoperative year.

2. A 65-year-old woman. Thyroidectomy for "malignant adenoma" with capsular invasion. Later pathologic diagnosis: Papillary adenocarcinoma. Postoperative roentgen therapy advised, but patient was discharged before it was administered. Living to date (five years).

3. A woman 49 years of age. Hemithyroidectomy for moderately differentiated adenocarcinoma. No postoperative roentgen therapy. After three years questionable scapular metastasis developed. Radiotherapy was given. Living five years postoperatively.

PROGNOSIS

Prognosis in individual cases of cancer of the thyroid gland is difficult. Kearns⁹ reported a patient who had thyroid carcinoma for 35 years yet was clinically well. Crile⁵ noted a similar case. The patient was well for over 25 years without treatment. The diagnosis was made by cervical node biopsy. Ward¹⁵ reported a patient who had goiter at age 24. It was present for 26 years before operation, was resected three times and treated with radiotherapy, and finally caused death at age 68. Ward asked: "Was the tumor malignant for 44 years, or for only about 20 years?"

One of the patients in the present series, a woman 22 years of age with undifferentiated carcinoma of the thyroid gland, had subtotal thyroidectomy (the clinical diagnosis was thyroiditis or "Hashimoto struma"). Two experienced pathologists interpreted the removed gland as undifferentiated carcinoma. The surgeons suspected that they had "seeded" the neck area and that reoperation would be futile. An immediate postoperative course of roentgen therapy to a tissue dose of approximately 4,000 r in four weeks was given. It was the author's impression and

that of the surgeons that the prognosis was hopeless. However, when last observed six years later, the patient, the mother of two children, was clinically well and without evidence of tumor or undesirable skin changes. Hers is regarded as an exceptional case.

In general, there is good prognosis for long survival with well-differentiated papillary adenocarcinomas, but startling exceptions do occur, and "indolent" tumors may become aggressive, especially in metastatic lesions.

With undifferentiated carcinoma of the thyroid gland the prognosis is virtually hopeless. Most patients are dead within a year of histological recognition.

Tumors of moderate differentiation are often associated with long survival especially when vigorous surgical and radiological means are employed to control the various manifestations of the disease as they appear. Diffuse pulmonary and nodal metastatic lesions may prove sensitive to roentgen therapy; bone lesions frequently heal; persistent efforts by the attending physician may yield great dividends in cases of this type. Radioiodine may occasionally be of much help.

MORBIDITY OF RADIOTHERAPY

Radiotherapy, like surgical treatment has its morbidity. With care and experience this can be kept to a minimum. It includes early erythema and dysphagia, and late telangiectasis, atrophy, fibrosis and ulceration. More serious complications include fistula and hemorrhage. Surgical morbidity includes bilateral recurrent laryngeal paralysis, postoperative hemorrhage, hypoparathyroidism, esophageal fistula and severe debility (which sometimes follows ultraradical procedures). Radical radiotherapy is rarely feasible or wise after radical operation.

Late undesirable radiotherapeutic effects can be kept to a minimum by careful individualization of treatment, avoidance of unduly rapid dosage, especially in the presence of infection, and scrupulous attention to technical details. When the radiotherapist himself performs each irradiation procedure he is in the best position to individualize carefully. Unduly protracted courses of irradiation, repeated heavy irradiation, and too rapid dosage in the case of debilitated persons all should be avoided.

In selected cases, ultra-hard radiation may be indicated. However, devices such as convergent beam therapy, rotation therapy, grid therapy and attempted tumor sensitization with drugs like synkavit have not been reported as effective.

DISCUSSION

The optimum place of radiotherapy in the treatment of cancer of the thyroid gland is the subject of considerable controversy. Most surgeons appear to agree with Martin¹⁰ that it is indicated for "rapidly growing, inoperable, and locally recurring thyroid cancer" and for "painful osseous metastases": but several add the comment that its postoperative use is not usually indicated. This paradox is presumably owing to the fact that much surgical writing deals with the operable cases in which *all* the tumor has been apparently removed, the writer ignoring or forgetting the many cases in which it is unfortunately not possible to dissect all the tumor from the trachea or remove all of the involved nodes.

Martin objected that "no evidence has ever been presented that radiation alone has produced five-year cures of thyroid cancer," apparently ignoring the five-year survivals in inoperable cases reported by Windeyer,¹⁷ Jacobsson,⁸ Paterson¹² and others. These five-year survivals in good health are just as much clinical cures as five-year survivals after surgical operation alone. In both instances, many of the patients would probably have survived five years anyway—because of the biological type of cancer present. However, in some cases the definitive radical therapy (radiological or surgical) unquestionably removed or destroyed hazardous masses. The author believes that except in the case of well differentiated papillary tumors apparently completely excised, the weight of clinical evidence is in favor of postoperative radiotherapy.

Survival or cure rates are always difficult to analyze. Most reports of surgical results are based on the operable cases seen and followed; they are relative, not absolute, results, and often exclude patients with inoperable lesions, those who refuse operation, those who died of intercurrent disease within five years and those who were lost to follow-up. Reports of radiotherapy results tend to be based on patients who were inoperable at the time of diagnosis or in whom the surgeon felt that some tumor had been left behind. They are strictly not comparable with surgical results in the more favorable series of operated cases. However, as in the case of surgical reports, some radiotherapists exclude cases in which the patient died of intercurrent disease or in whom completion of treatment was not possible, and few published results are "absolute"—that is, based on all patients seen, whether treated or not.

Recurrences may appear after such long periods of quiescence that Winship and Chase,¹⁸ for example, would prefer results to be based on 20-year

follow-up. They therefore disagree with Martin in his rather astonishing observation that "To be of practical value, end results . . . cannot very well be calculated on the basis of an observation period of much more than 5 years—otherwise by the time the figures were calculated, a great proportion of the active surgeons would have died of old age or be in retirement, in which case few surgeons could improve their methods by a critical analysis of their own experience and results."

Horn and Dull⁷ noted that five-year survival of 59 per cent (of 112 cases) dwindled to ten-year survival of only 30 per cent—and three of the latter group of patients had known recurrent disease. It is to be noted that in two-thirds of the cases in the group reported upon, the lesions were detected microscopically. The five-year survival rate for the patients in whom cancer was diagnosed clinically was only 37 per cent.

The following are other recently published five-year survival rates:

Windeyer¹⁷ (London University-Middlesex Hospital): 37 per cent.

Cohen and Moore³ (University of Minnesota)*: 34 per cent.

Jacobsson⁸ (Radiumhemmet, Stockholm): 46 per cent.

Martin¹⁰ (Memorial Hospital, New York): 42 per cent.

On the other hand (and to illustrate the results obtainable with material doubtless less favorable than the above) Watson and Pool¹⁶ reported five-year survival of only eight per cent. Presumably their series contained a much larger proportion of cases of undifferentiated or advanced cancers than those of the other quoted investigators whose papers were published in more recent years.

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REFERENCES

1. Ackerman, L., and del Regato, J.: *Cancer*, C. V. Mosby, St. Louis, 1955.
2. Bell, E. T.: *Textbook of Pathology*, Lea & Febiger, Philadelphia, 1952.
3. Cohen, M., and Moore, G. E.: Malignant lesions of the thyroid, *Surg.*, 35:62, 1954.
4. Crabtree, H. N., and Hunter, D. C.: Carcinoma of the thyroid, *Arch. Surg.*, 67:175, 1953.
5. Crile, G.: Carcinoma of the thyroid, *J. Clin. Endocrinol.*, 10:1152, 1950.
6. Dorn, H. F., and Cutler, S. J.: Morbidity from carcinoma in the U. S., *Pub. Health Monog.* 29, U.S.P.H.S., Washington, D. C., 1955.
7. Horn, R. C., and Dull, J. A.: Carcinoma of the thyroid, *Ann. Surg.*, 139:35, 1954.
8. Jacobsson F.: Treatment of carcinoma of the thyroid, *Acta. Rad.*, 41:169, 1954.

*These careful reporters publish both relative and absolute results, and give ten-year data.

9. Kearns, J. A., and Davis, H.: Review of the nodular thyroid, *Arch. Surg.*, 64:622, 1952.

10. Martin, H.: Surgery of thyroid tumors, *Cancer*, 72: 1063, 1954.

11. Meckstroth, C. V., and Curtis, G. M.: Criteria for the treatment of thyroid carcinoma with I^{131} , *Arch. Surg.*, 67:189, 1953.

12. Paterson, R.: *Treatment of Malignant Disease*. Williams & Wilkins, London, 1948.

13. Queen, F. B.: University of Oregon Department of Pathology. Personal communication, Sept. 20, 1955.

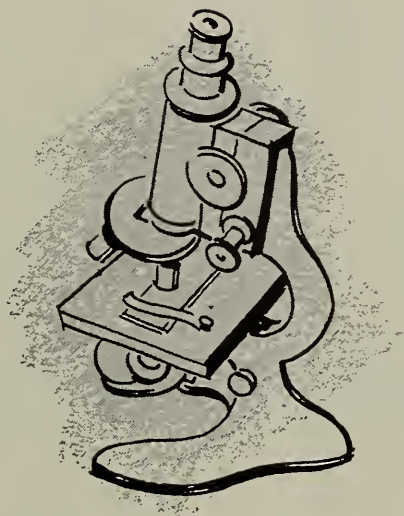
14. Sokal, J. E.: Surgical statistics of malignant goiter, *S.G.&O.*, 99:108, 1954.

15. Ward, R.: Malignant Goiter, *Surg.*, 16:783, 1944 (also *J. Clin. Endocrin.*, 9:1031, 1949).

16. Watson, W. L., and Pool, J. L.: Cancer of the thyroid, *S.G.&O.*, 70:1037, 1940.

17. Windeyer, B. W.: Carcinoma of the thyroid, *Br. J. Rad.*, 27:53, 1954.

18. Winship, T., and Chase, W. W.: Thyroid carcinoma in children, *S.G.&O.*, 101:217, 1955.



Surgical Treatment of Pulmonary Tuberculosis

A Decade of Change

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REVOLUTIONARY CHANGES have occurred in the treatment of pulmonary tuberculosis during the past ten years—the more striking by contrast with the gradual evolution in previous decades. The anti-tuberculosis drugs have greatly altered the treatment, the prognosis and, to a lesser extent, the attitude of physicians caring for tuberculous patients. The effect that the chemotherapeutic revolution has had on the surgical treatment of tuberculosis was noted in a review of surgical trends in the last ten years at the San Diego County General Hospital's Tuberculosis Division (Vauclain Home). The trends observed are a reflection of the opinions of the staff of the Tuberculosis Division, since surgical therapy is based on decisions of a combined medical and surgical conference.

The discovery of streptomycin introduced a drug with specific activity against the tubercle bacillus. The drawbacks to its use were gradually overcome by the addition of para-aminosalicylic acid, by the prolongation of the course of streptomycin and by reduction of the dosage to 1 gm. twice weekly. Long term drug therapy became even more common after the introduction of isoniazid. The antituberculosis drugs, which at first were used as supplements to other forms of therapy, are now primary means of treatment. Today almost without exception patients with active tuberculosis are immediately started on drug therapy, which is continued at least a year and, for most patients, several years. The increase in the use of the antituberculosis drugs during the last ten years is illustrated in Chart 1.

During the ten-year period 1945-1954, the mortality in San Diego County from tuberculosis dropped from 23 to 6.7 per 100,000 population, the swifter drop occurring after 1950 (Chart 1). The hospital's mortality rate as to patients with tuberculosis also dropped: In 1945 30 per cent of patients discharged from the Tuberculosis Service died; in 1954, 7 per cent (Chart 2).

The widespread use of long-term drug therapy has also produced a decrease in the average hospital stay of hospitalized patients and an increase in the number of patients under active treatment at home. This has resulted for the first time in the closing of

• To observe trends in the surgical therapy of pulmonary tuberculosis, the records of patients treated during the last ten years at the Tuberculosis Division of the San Diego County General Hospital (Vauclain Home) were reviewed.

In this decade, a chemotherapeutic revolution permitted more patients to be treated with fewer beds, lower mortality and shorter hospitalization.

Pneumoperitoneum has replaced other forms of temporary collapse. Pneumothorax, phrenic nerve interruption and pneumonolysis have been abandoned in favor of extraperiosteal plombage, particularly in older, poor risk patients.

The use of permanent collapse measures as definitive treatment has decreased, thoracoplasty and extrapleural pneumothorax having been virtually abandoned.

The use of resection in patients with permanent collapse failure, residual cavities, broncho-stenosis and destroyed lobes or lungs has become common, and good results have been obtained.

sanatorium beds and the disappearance of a waiting list (Chart 3)—this despite the fact that the number of patients treated in sanatoria actually increased in the decade covered by this study. More entered the Tuberculosis Division but they stayed a shorter time (Chart 2). In short, more patients are being treated, with a lower mortality rate, with fewer beds and shorter hospitalization.

TEMPORARY COLLAPSE MEASURES

The chemotherapy revolution has greatly altered the attitude of the staff toward the temporary collapse measures. Pneumothorax and phrenic nerve interruption are no longer used. Pneumoperitoneum has replaced them. During the last seven months of 1954 no pneumothorax refills were given and the last initial pneumothorax was in September, 1953 (Chart 4). This change in attitude has been brought about by the fact that with pneumoperitoneum there are practically no pleural complications and the condition is completely reversible from the functional standpoint. Also, when used in conjunction with drugs, pneumoperitoneum was found to be almost as effective in cavity closure as good pneumothorax. The change in use of temporary collapse measures

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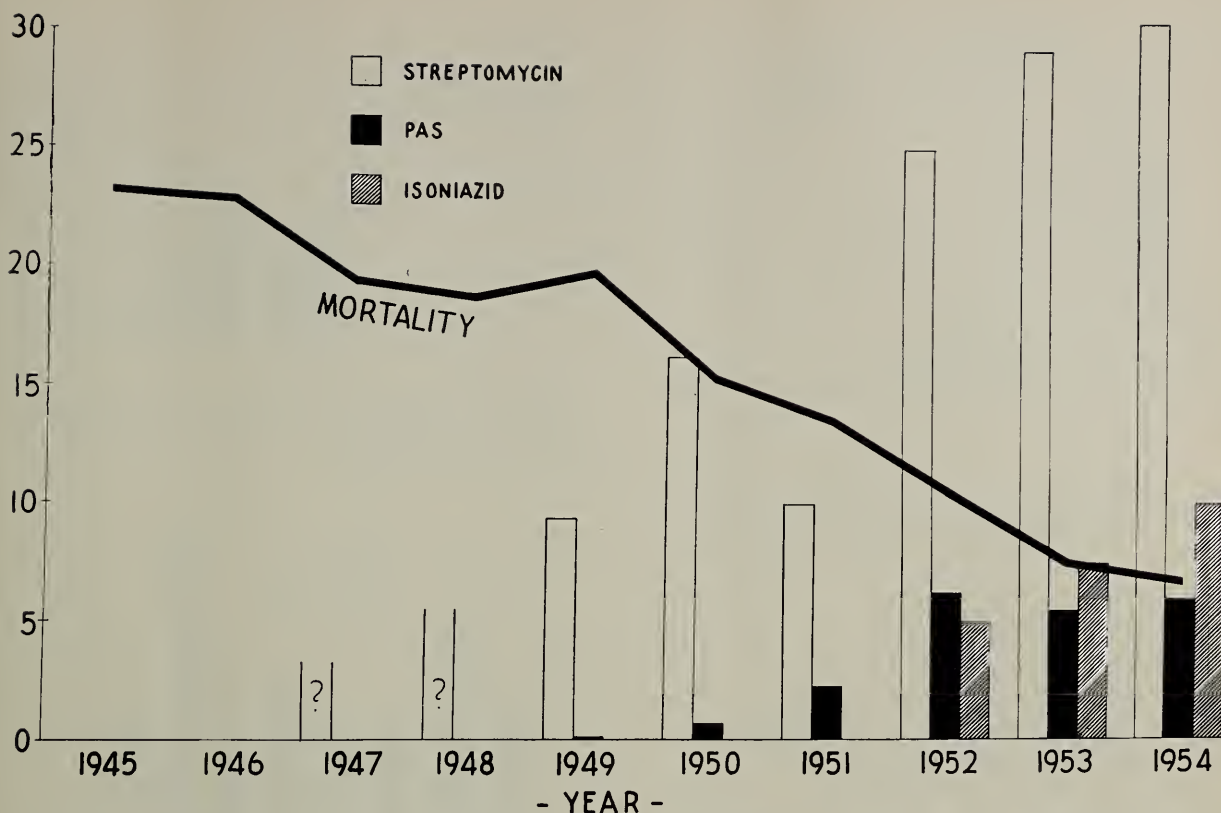


Chart 1.—Deaths from pulmonary tuberculosis per 100,000 population in San Diego County related to drugs purchased at the San Diego County General Hospital. Streptomycin and isoniazid purchases are shown in kilograms and para-aminosalicylic acid (PAS) in 100 kilograms. (Records are not available for drugs purchased during 1947 and 1948.) The decrease in streptomycin purchased in 1951 was due to a shift from daily to twice a week schedule in its administration as the use of PAS increased.

has thus made phrenic nerve interruption and pneumonolysis obsolete as minor surgical procedures (Chart 5).

PERMANENT COLLAPSE MEASURES

Permanent collapse measures which constituted the backbone of surgical treatment of tuberculosis as recently as 1950, have now been relegated to a secondary role since the advent of drugs and resective operations.

Thoracoplasty

During the last decade the two or three stage, seven-rib thoracoplasty has practically been abandoned. Patients who formerly would have had this form of permanent collapse therapy, now have closure of pulmonary cavities with chemotherapy and perhaps pneumoperitoneum, and are either spared operation or have resection. During the seven-year period prior to 1952 a yearly average of 22 patients had definitive thoracoplasty operations, the great majority having seven or more ribs removed in multiple stages. Since 1952 a total of only ten patients have had definitive thoracoplasty, all having five or less ribs removed, except one who had a one-

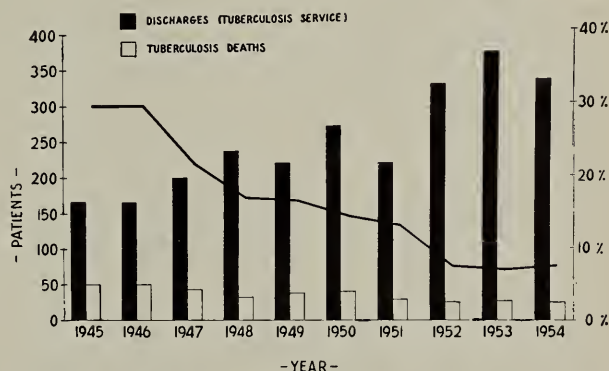


Chart 2.—Discharges from the San Diego County General Hospital, Tuberculosis Service and the number of deaths from tuberculosis among the discharges. The percentage column at the right shows the ratio of deaths to discharges.

stage six-rib thoracoplasty. In 1954 only two patients had definitive thoracoplasty (Chart 6).

Thoracoplasty of five or less ribs has been used after resection or (rarely) at time of resection in order to reduce space and promote expansion of remaining lung tissue. Six-rib thoracoplasty, sparing the first rib and including the seventh rib, has been used routinely after pneumonectomy in patients who had not previously had thoracoplasty.

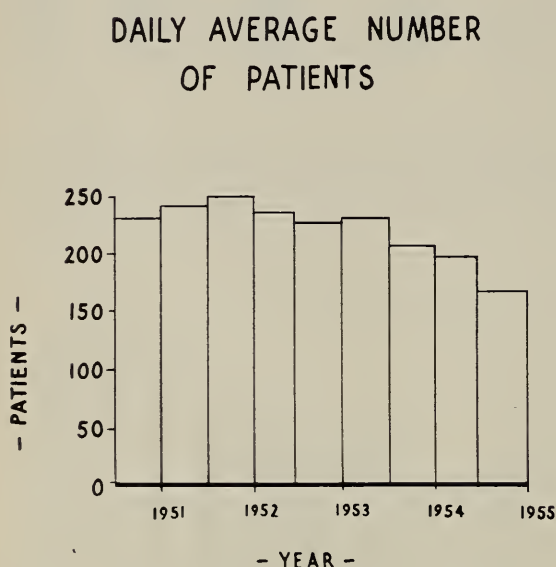
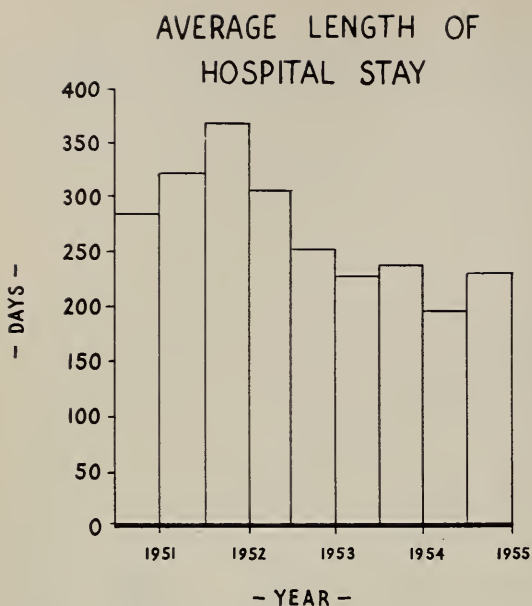


Chart 3.—*Upper*: Average length of hospital stay of adult tuberculosis patients at the San Diego County General Hospital between June, 1950, and January, 1953, by six-month periods. *Lower*: Daily average number of patients of same classification.

Revision thoracoplasty was rather commonly used during the first five years of the decade, but has been little used since 1950. The mortality rate has been low in the thoracoplasty series, there having been no deaths since 1948 attributed to that operation. Of the last 50 patients operated on since 1950, four are dead. Three of them died of non-tuberculous causes and one, in whom thoracoplasty failed, had resection and died following that operation.

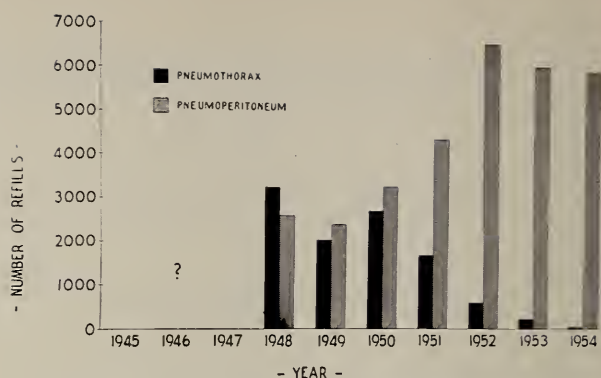


Chart 4.—Pneumothorax and pneumoperitoneum refills, both in-patient and out-patient, at the San Diego County General Hospital.

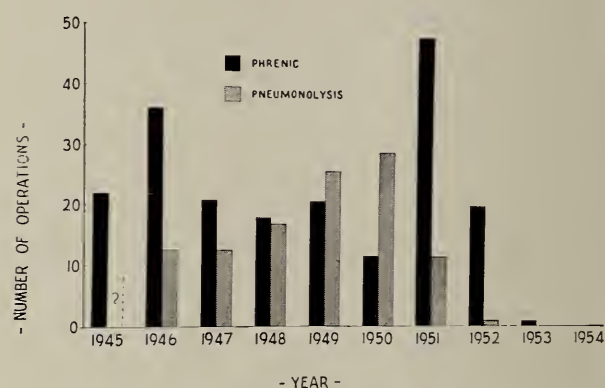


Chart 5.—Phrenic nerve interruption operations and closed pneumonolysis operations by years, during the decade of 1945 through 1954, at the San Diego County General Hospital. Neither operation was done in 1954.

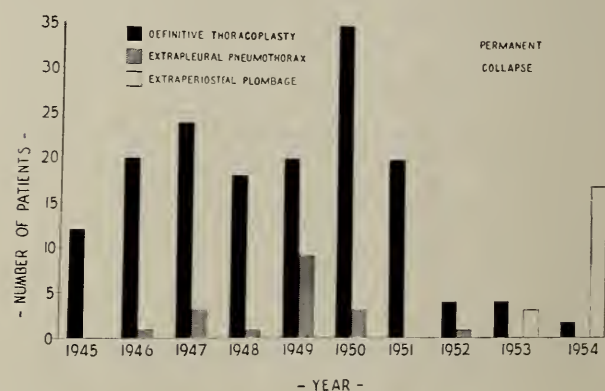


Chart 6.—The use of three "permanent" collapse measures during the decade of 1945 through 1954 at the San Diego County General Hospital.

Extrapleural Pneumothorax

Extrapleural pneumothorax, a more or less permanent collapse measure which has never been widely employed in this country, has been little used at Vauclain Home. Only 18 patients have had that operation in the last decade—nine of them in 1949, and only one since 1950 (Chart 6).

Extraperiosteal Plombage

Since the summer of 1953 extraperiosteal plombage⁹ (with lucite spheres covered with polyethylene sheeting) has been used in increasing numbers. The advancing average age of patients at the sanatorium—40 per cent of males discharged in 1954 were over 55 years of age, compared with 26 per cent in 1945—has increased the demand for an effective means of treating chronic cavitary tuberculosis in older, poor risk patients in whom the risk of resection appears to be prohibitive. Extraperiosteal plombage appears to be superior to thoracoplasty in patients of this type. It is performed in one stage with selective collapse effectively applied without paradoxical motion of the chest wall during the postoperative period. Since 1953 it has practically replaced thoracoplasty as a means of achieving definitive permanent collapse, 21 patients having this operation in less than 18 months, whereas in the same period, only three patients had definitive thoracoplasty (Chart 6). The preliminary results on this group of 21 patients are encouraging. One died of a nontuberculous lesion (perforated peptic ulcer), and two have had resection because the cavity did not close. In both the latter patients the disease was inactive at last report. In four patients the sputum remained positive for tubercle bacilli after plombage and at the time of this report were either waiting for resection or were considered prohibitive risks for resection. Fourteen patients reached "inactive" status after plombage. None of the 20 living patients were any worse for having had plombage. No complications attributable to infection occurred and the spheres were not removed unless resection was performed.

Resection

Pulmonary resection (Chart 7), which was considered far too risky except in practically hopeless situations a decade ago, has now become widely used as an elective procedure in many types of pulmonary tuberculosis. The protection afforded by the antibiotic drugs against postoperative spread, and improved techniques such as segmental resection, have brought about great changes not only in the indications for resective surgery but also in results.

During the first six years of the decade here reported upon, poor risk patients at Vauclain Home had lobectomy or pneumonectomy, often without drug protection. The mortality rate was high, nine early and late deaths from tuberculosis occurring among 22 patients operated upon. After 1950, with the introduction of long term drug therapy and the use of segmental resection, the mortality rate dropped and the number of resections increased. In 1952 32 patients had resection. The indications

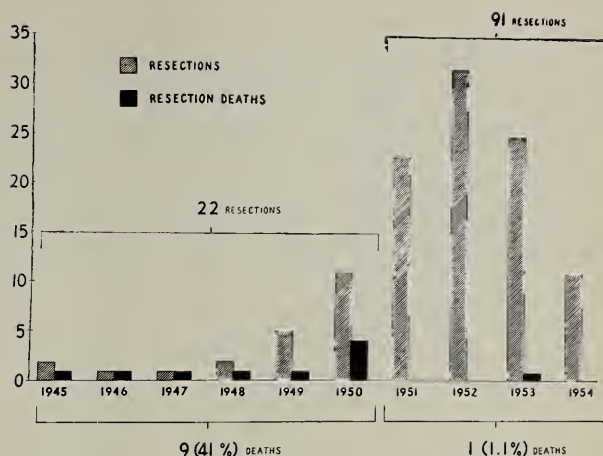


Chart 7.—The number of tuberculosis resections and resection deaths during the decade of 1945 through 1954 at the San Diego County General Hospital.

for resection, which originally included destroyed lobe or lung, bronchostenosis and failure of thoracoplasty were broadened to include residual cavity, blocked cavity, and even residual nodular disease or shrunken segments or lobes, regardless of whether or not there were bacilli in the sputum. Thus, an increasing number of so-called prophylactic resections were performed on patients who were bacteriologically "negative," radiologically "stable" and clinically "inactive."

There have been no reports of adequately followed patients treated with long term drug therapy on the one hand and long term drugs plus resective therapy on the other.³ When such reports are available, should the incidence of reactivation be higher without resection, it could justify a swing toward prophylactic resection. Clinical impressions and a few reports^{1, 2, 6, 7, 8} seem to suggest resection may not have been indicated in some of the elective cases in the present series. At any rate, from the 1952 peak the number of patients who had resection has decreased. Three factors have brought this about: (1) An increasing reluctance of the staff to suggest operations for patients with clinically inactive disease; (2) the introduction of isoniazid and long term multiple drug therapy, which removed certain patients from the list of possible candidates for resection; (3) the greater proportion of older, chronically ill patients in whom resective operation is considered too risky. Thus, the number of so-called elective resections is decreasing compared with salvage resections.

COMPLICATIONS OF SURGICAL TREATMENT

As the decade progressed, relatively fewer complications occurred following operation, owing to the protection afforded by the newer drugs and

the experience gained during the period. At first, drugs were withheld in order that they might be fully useful in event of operation later. As more antituberculosis drugs became available, always one drug was withheld in order that it would be fully effective for use after a surgical procedure. However, as time went on, it appeared that more could be gained by giving multiple drugs initially, regardless of the possibility of future operation. It was reasoned that there was a factor which was not taken into consideration in reports of various series^{4, 5} that seemed to indicate that the complication rate after operation was higher if previous drug therapy had been used, implying the development of drug resistance. It was felt that actually the patients who had had drug therapy were also the poorer risk patients—that they had been given drugs, indeed, for that very reason, and that while it appeared as if the complications were due to drug resistance, actually it may have been that there was a subtle “selection” of poorer risk patients. Hence, with the variety of drugs now available, the possibility that operation may become necessary later is not given a great deal of weight when chemotherapy is decided upon.

Spreads or Reactivations

Spreads or reactivations, which were common following permanent collapse procedures before the advent of specific drugs, are now rare. In fact, late reactivation occurred in one of 21 patients who had plombage after 1951 and in two of 30 patients who had thoracoplasty, neither of whom received isoniazid until after the spread occurred. Before 1951, of 18 patients who survived resection and the immediate postoperative weeks, five had reactivation or spread. Since 1951, of 90 patients undergoing resection, two had spread shortly after operation and five had late spread or reactivation necessitating rehospitalization. Only one of these seven patients died, and in that case death occurred after secondary resection. Only one of the seven patients with reactivation had received long term postoperative chemotherapy, and this did not include isoniazid. None of the patients with reactivation received isoniazid until after the reactivation occurred.

Empyema

Before 1951, empyema occurred in five of 18 patients surviving the immediate postresection weeks. After 1951, this complication developed in four of 90 patients who had resection. Again, the decrease in this complication illustrates more ex-

perience and the great protection of the antituberculosis drugs.

Mortality

Prior to 1951 data were not kept on the death of patients undergoing thoracoplasty, but since 1951 four of 30 patients who had the operation have died, but none as a result of thoracoplasty. One died after secondary resection, the other three from nontuberculous causes. One death (of nontuberculous cause) occurred in 21 patients who had plombage. Nine of 22 patients who had resection before 1951 died of tuberculosis, one of them a year after resection and another four years after operation. After 1951 one patient of 90 who had resection died undergoing secondary resection. Two others have died of nontuberculous causes (Chart 7).

Several factors, other than the increased use of antibiotics, have brought about the decline in surgical mortality and morbidity. One of these is the increased awareness of the importance of operating on patients with stable disease. Also a factor is the increased skill in using the techniques of segmental resection, local excision and wedge resection (the latter very seldom). Simultaneous thoracoplasty and resection has been little used (four patients) because of the increased morbidity with it in the author's experience. Thoracoplasty with intubation has been used in patients in whom residual air pockets developed following resection. This has usually been performed ten days to two weeks after resection and has been done by opening through a rib bed into the air pocket and inserting the tube in such a way that it does not cross the thoracoplasty wound space. This technique has promoted the closure of air pockets quickly without the formation of empyema.

Pneumoperitoneum before and for several months after resection has been used to promote expansion of the unresected lung tissue. Its use has perhaps aided in preventing residual air pockets. The prone position during operation has been used in all poor risk patients and in patients with excessive secretions. Leaving long anterior rib stumps, except of first and second ribs, in definitive and postresection thoracoplasty, has materially reduced paradoxical motion and loss of function postoperatively. The use of as little sedation as is compatible with comfort has made for a smoother and more rapid convalescence.

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REFERENCES

1. Egle, Joseph L., Fenger, Ejvind P., and Thomas, Morris C.: Report of Eleventh Pembine Conference; The Am. Rev. of Tub. & Pul. Dis., 72:137, July 1955.
2. Gordon, Joseph: Discussion of paper by O'Brien et al'; Jour. Thoracic Surg., 26:446, Nov. 1953.
3. King, Donald S.: Present status of the treatment of tuberculosis in man; Jour. A.M.A., 158:829, July 9, 1955.
4. Minutes of the Ninth Streptomycin Conference, St. Louis, Missouri, April 1950.
5. Murphy, James D., Walkup, Larry E., Seiler, Hawley H. and Bornstein, S.: Complications following pulmonary

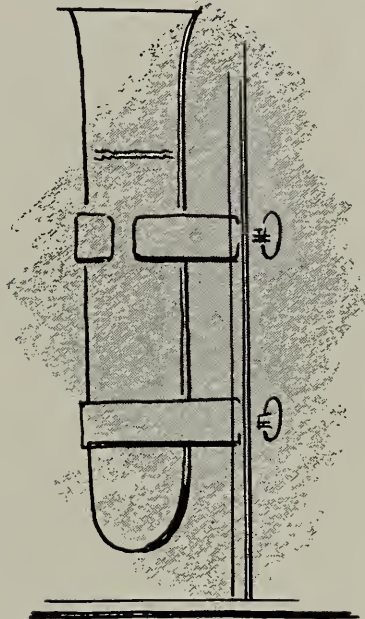
resection for tuberculosis in streptomycin treated patients; Dis. of Chest, 19:493, May 1951.

6. Muschenheim, Carl: A schema of treatment in tuberculosis; Am. Rev. Pul. Tub. & Pul. Dis., 72:1, July 1955.

7. O'Brien, Edward J., Miller, Arthur C., Chapman, Paul T., Koster, Koert, and O'Rourke, Paul V.: The present chaos regarding resection of residual caseous lesion in pulmonary tuberculosis; Jour. Thor. Surg., 26:441, Nov. 1953.

8. Welles, Edward S.: Discussion of paper by O'Brien et al'; Jour. Thoracic Surg., 26:445, Nov. 1953.

9. Woods, F. M. and Buente, L.: Extraperiosteal lucite ball plombage; Trans. N.T.A., 49th Ann. Meet., 1953, page 208.



The Pharmacological Treatment of Headache

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HEADACHE IS A SYMPTOM which may be associated with a variety of clinical conditions whether the underlying disorder be organic, psychologic or psychophysilogic. The appraisal of the results of any method of therapy in patients with chronic headache is extremely difficult, for the major criterion of effect, relief of pain, is subject to many variable factors.

Furthermore, a symptom related to the head is frequently associated with profound anxiety which is due not only to the underlying emotional conflicts responsible for the headache but the threat of the symptom itself. For headache may represent many things to the patient, among which are fear of loss of mind, of disorder of the brain or of impairment of intellectual capacity.

Reading the literature on treatment of chronic headache, a physician is confronted with reports of a consistently high degree of therapeutic success obtained with a variety of remedies. The success of each of the numerous remedies is attributed to the fact that it corrects some hypothecated defect. Among these are reports by certain allergists that over 80 per cent of the patients treated are cured or considerably improved. Ophthalmologists have stated that correction of refractive errors has resulted in considerable improvement in 90 per cent of the patients; endocrinologists note excellent results with various treatments; and reports from orthopedists have indicated successful management of migraine by the use of cervical traction in 85 per cent of cases. Certain psychoanalysts report successful therapy in all cases. Reports by internists claim almost equal success with thiamine chloride, calcium, potassium, histamine desensitization, use of antihistamine, sympatholytics, drugs, sedation, etc. The good results obtained by the primary investigators can seldom be duplicated by others.

With such a diversity of opinions and reports in therapy by the various disciplines, evaluation of pharmacotherapy becomes even more complicated. It is obvious that relative alleviation of symptoms is difficult to ascertain, not only from patient to patient, but also in the same patient during different periods of observation. These differences are empha-

• Often in the treatment of chronic headache, both physical and emotional factors are entailed. Therefore, the results of therapy are limited by the potentialities of the patient in therapy, the pharmacologic actions of the medications used, and the physician's interest and orientation toward the problem. The treatment of choice is generally a combination of psychotherapy and drug therapy. Results in a large series of tests with these types of headaches indicate the effectiveness of treatment is greatly influenced by the patient's psychological reaction to the treatment situation in general and in particular to having received a remedy from the physician. Patients with migraine did not respond to placebos as well as did patients with tension headache, post-traumatic headache and headache associated with hypertension.

sized by reports in the literature which, in some cases, show similar medication yielding completely opposite results, while in others the first glowing therapeutic success diminished to a feeble flicker in later studies.

In the majority of headache problems, the most effective treatment is to relieve the underlying cause. While the use of drugs, in some cases, may not solve the basic therapeutic problem, the importance of drugs in the treatment of headache cannot be minimized. In pharmacologic treatment, attempt is made to do one or more of the following: (1) Raise the pain threshold, (2) interrupt the mechanism producing pain, (3) reduce the emotional tension and anxiety associated with the pain.

In pharmacotherapy the efficiency of any drug does not depend upon its pharmacologic action alone.³ Dosage, timing, mode of administration, tolerance, influence of pathological states, cumulative action and individual idiosyncrasy of the patient are factors of great importance. Furthermore, the efficiency depends greatly upon the patient-physician relationship, which includes, among other things, the attitude of the physician toward the medicine given (positive or negative) and the length and frequency of interviews with the patient. The author believes that patients' reactions to drugs not only depend upon the drug's effect on the underlying disorder responsible for the headache, but also upon the degree of incapacity, constitutional makeup of the patient, duration of symptoms, age of individual, and psychological setting of the therapeutic regimen

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and status of the patient. What the taking of medication symbolizes to the patient is also a contributory factor in treatment. Is the taking of medication a sign to the patient of weakness, of receiving omnipotent mystical power, punishment or aggression, love and affection? All these factors must be given serious consideration in the clinical usage of drugs in the treatment of headache.

The number and mass of therapeutic agents recommended for relief of headache indicates that there is no one specific form of therapy. Poor results with an agent which has been reported to be effective may indicate that the drug itself is unsatisfactory or that it is being improperly used. From the author's observations, it would appear that the most common causes of therapeutic failures are incorrect diagnosis, inappropriate, inadequate or improper administration of medication, inflexibility of therapeutic regimen and variables in the patient's emotional life.

METHOD

The author knows of no completely accurate method of clinical testing of drugs for headache therapy. The best method of drug evaluation would seem to be the use of the double blind technique in which all agents tested are employed in all subjects. Whenever possible, all "placebo-fast"* patients should be eliminated from the study. In all cases attempt should be made to test more than two agents, which minimizes the chance of placebo detection. Without these techniques, a study of hundreds of cases over a number of years is likely to yield inaccurate results. The trained observer has not proven as valuable a subject as the untrained.¹ The highly trained observer tends to be biased, having an interest in the outcome, whether scientific, pecuniary or emotional. Of course, learning can occur with any subject, but the results are more weighted with the experienced group.

Concurrent observations of the life situations and emotional reactions of the patient and, when possible, of the physician, are most important for critical appraisal of the specific value of the drug being investigated.

Appraisal of Drugs in Specific Headache Entities

The present discussion will be limited to some of the author's past studies on headaches associated primarily with an emotional disturbance (tension headache), cranial trauma (post-traumatic headache), migraine and hypertension.

Since the effectiveness of the various medicaments was said to vary in these specific groups, it is important to define the diagnostic categories used.

*It is normal to respond to placebo effects at times. Patients who almost always or almost never undergo placebo responses have personality patterns which depart from what may be considered the norm.

Differential Diagnosis

1. TENSION HEADACHE:

(a) *Clinical features.* Tension headache occurs in relation to constant or periodic emotional conflict, of which the patients are usually partially aware.⁴ They have no prodromata, are usually bilateral, occipital or frontal, and may be accompanied by a variety of associated signs, including anxiety and nausea. Frequency and duration are variable.

(b) *Mechanisms.* The mechanism by which cranial structures give rise to headache in patients with psychic distress may operate at two levels, each applicable to a different group of psychogenic headaches.

In one group (tension headache) the mental conflict may stimulate the sympathetic or autonomic nervous system with change in the caliber of blood vessels or stimulation of the somatic motor system with contraction of skeletal muscles, particularly those of the neck.

In another group (conversion headache) the symptom represents a specific unconscious symbolic meaning, and conversion mechanisms are prevalent. Headache of this type cannot be distinguished from tension headache by clinical description alone.

In tension headaches muscular or vascular mechanisms may act independently or concomitantly. With muscle tension, sustained contraction of the skeletal muscles of the head and neck causes pain or dysesthesia in the neck and scalp. Associated with these muscular spasms may be ischemia which could be a contributory or primary factor in the induction of pain. It has also been hypothesized that excessive concentration of potassium in muscle from ischemia or sustained contraction stimulates the chemoreceptors in the tissues. Another factor responsible for the head pain may be a central spread of the excitatory effect of noxious stimulation of the soft tissues of the neck. This spread of pain is carried by the upper cervical nerves and may produce painful sensations in the forehead and face.

2. POST-TRAUMATIC HEADACHE:

One of the most frequent sequelae to injury of the head is post-traumatic headache. This occurs in approximately 60 per cent of patients who have had head injuries.² Post-traumatic headache resembles tension headache. The headache is usually referred to the side or part of the head which the patient associates with the injury. The physiologic mechanisms which are presumably involved in the production of post-traumatic headaches are distention of cranial blood vessels, sustained contraction of the skeletal muscles of the head and neck, and scarring of the extracranial soft tissues.

The incidence of prolonged headache in patients following head injury was associated with neurotic symptoms prior to injury, with symptoms of marked immediate emotional reaction to the injury, and with complicating environmental factors which might be presumed to cause the usual emotional stress.

3. MIGRAINE:

(a) *Clinical features.* Migraine may be defined as that form of headache which is characteristically paroxysmal, periodic, unilateral and throbbing. The headache occurs against a background of relative well-being, is often preceded by visual or psychological disturbances, and is usually associated with vomiting and irritability.

(b) *Physiological mechanisms.* The following physiological changes occur in an attack of migraine:^{8,9} An initial vasoconstriction of certain intracranial branches of the internal carotid artery produces visual and possibly other preheadache phenomena before the onset of the headache. This prodromal period is followed by dilation and distention of cranial arteries, primarily in the area of distribution of the external carotid artery. Stimulation of pain-sensitive nerves in and around the dilated vessels by the increased amplitude of pulsation is the presumed cause of the headache. Persistent dilation results in a rigid, pipe-like state of the vessels. The pain at this stage is a steady ache, replacing the earlier throbbing, pulsation type. During or following this stage, there is contraction of the neck muscles, and "muscle-contraction pain" develops. This spasm of the muscles is a reaction to the initial pain and may outlast it. The initial phase of the headache is due to stimulation of pain endings which lie in or near the walls of the intracranial arteries, whereas the latter, or "muscle pain," is probably the result of either direct stimulation of nerve endings or ischemia of the muscles. Although in migraine the immediate cause of pain is associated with dilation of cranial arteries, it is evident that dilation of blood vessels alone is not sufficient to produce headache. Other dynamic or chemical factors as yet not clearly delineated must contribute.

A small but important group of patients observed by the author with the clinical features of frequent migraine headaches turned out to be schizophrenic. These patients had many pseudoneurotic symptoms which were associated with a feeling of catastrophe, oddities of behavior, a gradual withdrawal from reality and descriptions of situations which are nebulous and changeable. Such persons seldom respond to psychotherapy or medication for symptomatic treatment of an attack. The obvious schizophrenic behavior usually occurs much later. In many of these patients the nature of the mechanism is not peripheral and remains obscure. Recognition of this

problem is important to avoid needless routine therapy for the patient and frustration for the physician, and to insure adequate early treatment of the schizophrenia.

4. HEADACHES ASSOCIATED WITH HYPERTENSION:

(a) *Clinical features.* The headache of arterial hypertension is usually a dull, throbbing, deep ache. It is aggravated by strain, stooping and emotional tension. This headache may be generalized or confined to the front or back of the head. Although usually bilateral, it may resemble migraine by periodicity and by being confined to one side of the head. It often appears upon the awakening of the patient and may improve as he moves about. Nausea and vomiting are infrequently noted. Another variety of headache occurring with hypertension is a suboccipital tightness and rigidity which may encircle the head.

(b) *Physiological mechanisms.* The pathogenesis of headache in essential hypertension is obscure. The degree of headache is not proportional to increased blood pressure. The headache may be present when the blood pressure is low as well as high. It is postulated that variation in the contractile state of the cranial arteries is the cause of the headache, and that the elevated blood pressure is only an accessory factor. Experimental administration of ergotamine tartrate usually abolishes the headache, which would indicate that the mechanism of pain production may be similar to that in migraine. Headache of this kind is not due to increased intracranial pressure since this pressure is normal, nor will elevating the pressure experimentally produce the pain. There is no relationship to impairment of renal function in headaches associated with hypertension. When the blood pressure is lowered by therapeutic measures, such as sodium restriction or antipressor drugs, the headache disappears.

EVALUATION OF AGENTS USED IN TREATMENT

In the past ten years the author has evaluated a number of agents in the treatment of headache. Following is a discussion of the results of three separate studies:

1. The effectiveness of drug therapy in the treatment of tension and post-traumatic headache is influenced by many factors. In a series of over five hundred patients the effectiveness of the medication depended to some extent on the physician prescribing the medication, the time he spent with the patient, and the frequency with which the patient was seen by him.⁵ It was noted that in many cases patients would maintain a state of improvement if they were seen at weekly intervals, but would have recurrence of headaches if they were seen at monthly intervals instead.

In addition, the factors of disability compensation and litigation played a part in many cases of post-traumatic headache.

Fifty to sixty per cent of the patients with psychogenic and post-traumatic headache responded favorably to almost any medication given to them. The drugs used included analgesics, vasoconstrictors, vasodilators, hormones combined with vitamins, placebos, and parenterally administered isotonic sodium chloride solution. The analgesics, and some of the oral placebos were taken only at the time of the headache, while the hormone-vitamin combinations and isotonic sodium chloride solutions were given by injection at regular intervals. The effect of medication given by injection in cases of psychogenic illness is too well known to require further discussion here. In addition, several of the patients receiving the combinations of hormones and vitamins reported a feeling of well-being that undoubtedly played some part in their improvement. The similarity of response of pain with the various medications in tension and post-traumatic headache again emphasizes the close relationship between these two types of headache.

The best results in each group of patients were obtained by the use of analgesics. The other drugs gave no better results than those obtained by the use of inactive substances.

2. In a study with 2,000 patients with migraine or tension headache the following results were noted.⁶ The most effective symptomatic treatment of migraine was oral or rectal administration of ergotamine tartrate and caffeine (Cafergot®). Rectal use of Cafergot proved empirically to be most efficacious especially when oral medication could not be retained. It is likely that rectal medication has the advantage of being absorbed more directly into the systemic circulation without having to penetrate the hepatic and gastric barriers. Hence it is postulated that this action is quicker with less side effects than with oral administration. This requires further investigation. The psychological connotation of taking medication via rectum must also be given consideration. Fifty-six agents were tested in this study and approximately 80 per cent of the patients received symptomatic relief by early and adequate administration of some form of ergotamine and caffeine whereas only 25 per cent had the same response to placebos. In cases of tension headache, the treatment of choice was a combination of an analgesic and sedative. Fifty different combinations of drugs were used in this study. Sixty-five per cent of the patients studied received relief symptomatically by use of analgesic-sedative combination. The placebo response in this group was close to 50 per cent.

This study indicated that, except in a few isolated cases, there are no known drugs available which are

helpful prophylactically in the treatment of migraine. In an occasional case, the allergic, hormonal or metabolic factor, when adequately controlled, may prevent the onset of an attack of migraine. However, in a great majority of patients who have migraine, control of the psychic and stress factors is the most successful method of treatment.

As in migraine, there is no good prolonged medical treatment for tension headaches, although the use of sedation and some of the newer medicaments, such as Reserpine and chlorpromazine, may prove mildly successful. In general, both of these conditions require psychotherapy for adequate control, as this is the only method in which the patient's emotional conflicts can be resolved.

3. In a recent study⁷ in which rauwolfia was used in a series of 220 patients with headaches that were diagnostically divided into migraine, tension and headaches associated with hypertension, it was found that in patients with migraine, 38 per cent had a reduction in frequency of these headaches; in patients with tension headaches, 75 per cent had improvement in headache status; and in patients with headache associated with hypertension, 80 per cent showed reduction in frequency of headache. However, all these data must be considered in the light of placebo experience in the same series, which indicated a favorable result in over one-half of the migraine and tension cases, and two-thirds of the cases of headache associated with hypertension.

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REFERENCES

1. Beecher, H. K.: Appraisal of drugs intended to alter subjective responses, symptoms, *J.A.M.A.*, 158:399, 1955.
2. Brenner, C., Friedman, A. P., Merritt, H. H., and Denny-Brown, D. E.: Post-traumatic headache, *J. Neurosurg.*, 1:379, 1944.
3. Friedman, A. P.: *Modern Headache Therapy*, C. V. Mosby Co., St. Louis, 1951.
4. Friedman, A. P., de Sola Pool, N., and von Storch, T. J. C.: Tension headache, *J.A.M.A.*, 151:174, 1953.
5. Friedman, A. P., Brenner, C., and Carter, S.: Symptomatic treatment of certain types of chronic headache, *J.A.M.A.*, 139:195, 1949.
6. Friedman, A. P., von Storch, T. J. C., and Merritt, H. H.: Migraine and tension headaches; a clinical study of two thousand cases, *Neurol.*, 4:773-788, Oct. 1954.
7. Friedman, A. P.: The treatment of headache with reserpine, *Neurol.*, 5:805-808, Nov. 1955.
8. Marcussen, R. M., and Wolff, H. G.: Studies on headache; effects of carbon dioxide-oxygen mixtures given during preheadache phase of migraine attack; further analysis of pain mechanisms in headache, *Arch. Neurol. & Psychiat.*, 63:42, 1950.
9. Schumacher, G. A., and Wolff, H. G.: Experimental studies on headache: Contrast of histamine headache with headache of migraine and that associated with hypertension; contrast of vascular mechanisms in preheadache and in headache phenomena of migraine, *Arch. Neurol. & Psychiat.*, 45:199, 1941.

Neomycin in Urinary Tract Infections

A Clinical Evaluation

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NEOMYCIN IS AN ANTIBIOTIC, water-soluble, polybasic compound elaborated by a strain of *Streptomyces fradiae*.⁶ It is very active against many Gram-negative bacilli as well as some Gram-positive bacteria, and is particularly useful in urinary tract infections where the organisms are resistant to other antibiotic and chemotherapeutic agents.

A wide range of bacteria is susceptible to neomycin in vitro and in vivo. *Aerobacter aerogenes* and *Escherichia coli* are among the very sensitive organisms. Some strains of *Pseudomonas aeruginosa* and *Proteus vulgaris* are sensitive to the drug while others are more resistant.² It is also effective against certain Gram-positive organisms such as *Micrococcus pyogenes* and an occasional streptococcus. Neomycin is bactericidal against many organisms and is bacteriostatic against a few (*Ps. aeruginosa* and *B. proteus*). In many instances, organisms that are resistant to streptomycin will be sensitive to neomycin. This includes the tubercle bacillus. Resistance to neomycin can develop rapidly in some organisms (*Ps. aeruginosa* and *B. proteus*) but the very susceptible Gram-negative organisms and tubercle bacilli develop resistance to it more slowly than to streptomycin.² Although streptomycin-resistant strains are sensitive to neomycin, strains that have developed resistance to neomycin also demonstrate increased resistance to streptomycin. Neomycin and the tetracycline group, however, act independently in regard to resistant organisms.

Neomycin is rapidly absorbed after intramuscular injection and is excreted by the kidneys in high concentrations. Although it is demonstrable in the blood stream within a few minutes after injection, urinary excretion continues for 24 hours after the last dose.² When it is given orally, there is very little absorption and Pulaski found that only 3 per cent was excreted in the urine, the rest being recovered in the feces in active form.²

Limitations of the use of neomycin are due to the nephrotoxic and neurotoxic factors inherent in the antibiotic. The effect on the kidneys may cause enough irritation to produce transient mild proteinuria, fine granular casts and, occasionally, mild

• Neomycin was effective in treating 31 cases of severe Gram-negative bacillary urinary tract infections sensitive to neomycin and resistant to other agents. The recommended dosage schedule of 0.5 gm. every 12 hours for five days was demonstrated to be relatively safe. However, close watch should be maintained for signs of nephrotoxicity and ototoxicity.

elevation of the nonprotein nitrogen in the blood. The neurotoxic effects may be those of disturbances of hearing and are more likely to occur when poor renal function interferes with proper elimination of the drug or when it is used in large doses and for long periods.⁵

This report is concerned with the therapeutic effectiveness of neomycin and the absence of serious toxicity when given in a low dosage schedule for a limited duration of treatment. In a series of 31 patients who received 1 gm. or less of neomycin daily for a total of five days or less, no serious untoward effects occurred and the therapeutic results were such as to warrant its more widespread use. Nesbit and co-workers reported a previous series with similar findings.¹

CLINICAL STUDY

Neomycin therapy was evaluated in 31 cases of severe urinary tract infection (Table 1). All the patients had previous chemotherapeutic or antibiotic trials without success. In vivo and in vitro resistance was present or had developed generally to all agents other than neomycin (penicillin, streptomycin, tetracycline, chloramphenicol, furadantin, polymyxin, erythrocine, sulfonamides). In many instances clinical response to mandelamine was likewise poor. Many of this group of patients had obstructive urinary tract lesions and would not ordinarily be considered likely candidates for eradication of infection by antibiotics. In addition, varying amounts of renal damage were present in some patients prior to treatment with neomycin.

Urine cultures and sensitivity studies were largely done by the plate method. One tenth milliliter of urine was spread over a blood-agar plate in which the concentration of neomycin was 10 micrograms

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per milliliter. After 24 and 48 hours, the absence of colonies was interpreted as indicating that organisms in the urine were sensitive to the drug, the presence of colonies as indicating resistant organisms.³ In some cases the test was done by the tube dilution method. Sensitivity to neomycin varied: From 2 to 30 mcgm. per milliliter was needed, the organisms being sensitive to 10 mcgm. per milliliter in vitro in the average case. Six groups of bacteria in both pure and mixed infections were treated—*E. coli*, *B. proteus*, *Ps. aeruginosa*, *A. aerogenes*, paracolon group and *Enterococcus*.

The usual dosage schedule for adult patients was 0.5 gm. of neomycin every 12 hours for an average total of eight doses. One patient was treated for one week, and 15 were treated for less than eight doses. Treatment was shortened in the latter group because of rapid therapeutic response or initially impaired renal function, but not because of developing toxicity. An attempt was made to reduce the dosage of neomycin still further and yet obtain sterilization of the urinary tract. In five cases of long-standing, chronic, deep-seated infection the urine was rendered sterile on a dosage of 0.25 gm. every 12 hours for eight doses. Three patients were children. Neomycin sulfate (Mycifradin, Upjohn) was used throughout.

Daily complete urinalysis was done on every case and the nonprotein nitrogen, serum creatinine or phenosulfonphthalein excretion were measured before and immediately after therapy. Some patients were observed from time to time for as much as a year after treatment and no latent toxicity which did not appear during treatment was noted. No audiometric tests were done but gross auditory disturbances were carefully watched for. Urine cultures were done before treatment, during treatment, immediately following cessation of therapy and then at varying intervals for as long as a year. On subsequent follow-up, if there was any indication of recurrent infection either by symptoms or stained smear of the urine, cultures were done. For the most part, patients were followed for at least two to six months. Three patients were treated on an outpatient basis. Because previous laboratory studies had already provided adequate data on blood and urinary levels of neomycin, these studies were not done in the present series.

RESULTS

Of the 31 patients treated, none had gross neurotoxic effects from neomycin. In five cases transient mild proteinuria developed and there were a few fine granular casts. Treatment was not discontinued because of these developments and the urine returned to normal either during or immediately after treatment. None of the four patients with impaired renal

function had any increased impairment, and only two showed slight renal toxicity from neomycin.

Twenty of the patients were cured or had permanent improvement. One patient died of postoperative complications, but he had had dramatic response to neomycin, with rapid sterilization of the urine and no apparent toxic effect from the drug. There were two complete failures in patients with pronounced obstructing lesions. Three others showed significant clinical improvement but complete sterilization of the urine was not accomplished. Five patients had temporary remission lasting from eight days to two months. Only one of these had nonobstructive urinary tract disease. The others all had severe obstructive uropathic conditions and debilitating chronic disease other than infection.

In most of the patients with poor results there was mixed infection with one or more of the organisms resistant to neomycin. In four such cases, subsequent cultures revealed the same organism which had become resistant to neomycin. One patient had immediate reinfection with a new organism—*Ps. aeruginosa*. Three others had good clinical response immediately but later had infection with *Ps. aeruginosa* or *Proteus*.

There were no episodes of diarrhea, itching, dizziness, headache, sweating, nausea or other symptoms often associated with the more common antibiotics.

DISCUSSION

It is recommended that neomycin therapy be reserved for patients with severe Gram-negative neomycin-sensitive infections that do not respond to other less potentially toxic agents.² For this group of patients, neomycin appears to be a valuable addition to the urologic armamentarium of antibiotics. Its therapeutic effectiveness permits its use in low doses over a short period of time so that the potential hazards of toxicity are minimized. Indeed, some of the patients in the present series were females with long standing chronic cystitis. In these cases, good results were obtained with only 0.25 gm. every 12 hours for as few as four or six doses. In the average adult with normal renal function, a dose of 0.5 gm. every 12 hours for five days is relatively safe and may be given to an ambulatory patient. The patient should be observed for nephrotoxicity by daily urinalysis for proteinuria, casts and renal cells. Any nephrotoxic changes observed during this dosage schedule appear to be completely reversible. In the present series there were no cases in which there was detectable ototoxic effect. However, it must be emphasized that neomycin is a toxic drug and although there was no serious toxicity observed with the dosage schedule described, permanent deafness has resulted in patients treated with a neomycin

TABLE 1.—Clinical and Laboratory Data on 31 Cases of Urinary Tract Infections Treated with Neomycin

Diagnosis	Age Sex	Initial Renal Function	Initial Culture Sensitivity Mgm./ml.	Dosage	Previous Therapy	Culture After Therapy	Toxicity	Results
1. Severe chronic pyelonephritis. Solitary kidney.	25 M	Impaired: BUN 46.7 mgm. %, Serum creatinine 2.5 mgm. %, resp 32% 2 hr.	E. coli: 2 A. aeruginosa (also sensitive to tetracycline: 10)	0.5 gm. q 12 hr. × 2 gm. per day of tetracycline for 1 wk. Total: 7 gm.	Usual plus streptomycin	Sterile	None	Marked improvement. Urine negative, sterile, with no recurrent pyuria. 9 mo. follow-up.
2. Chronic cystitis, persistent pyuria. Symptoms 5 yr.	45 F	Normal	A. aerogenes: 2	0.5 gm. q 12 hr. × 10 Total: 5 gm.	Usual plus streptomycin	Sterile	None	Persistent relief from symptoms. Urine negative, sterile, 4 mo. follow-up.
3. Bilateral hydronephrosis, hydronephrosis. Severe, acute and chronic bilateral pyelonephritis. Temp. 40° C. 59 lb.	8 M NPN 52 59 lb.	Impaired: NPN 52 resp 30% 2 hr.	Ps. aeruginosa A. aerogenes: 30	200 mgm. q 12 hr. × 6 Total: 1.2 gm.	Usual plus streptomycin	Sterile	None	Afebrile 6 hr. after first dose. Urine sterile in 48 hr. 4 mo. follow-up.
4. Chronic cystitis, 4 yr., persistent pyuria, severe symptoms. (Had remission during furandantin therapy but couldn't tolerate drug.)	59 F	Normal	B. proteus: 30	0.5 gm. q 12 hr. × 10 Total: 5 gm.	Usual	Sterile	None	Prompt remission within 48 hr. Culture sterile, asymptomatic. Relapse after 2 mo. Organism now resistant.
5. Severe recurrent acute prostatitis. Temp. 39.8° C. No residual urine.	45 M	Normal	A. aerogenes: 10	0.5 gm. q 12 hr. × 10 Total: 5 gm.	Usual	Sterile	None	Afebrile within 24 hr., urine sterile in 48 hr. 6 mo. follow-up.
6. Congenital bladder neck obstruction, bilateral ureterovesical obstruction. Bilateral hydronephrosis and hydronephrosis.	4 M	Impaired: Urea 60 mgm. %	Ps. aeruginosa Paracolon: <10	0.075 gm. q 12 hr. × 8, Polymyxin 0.020 gm. q 12 hr., Srep. 0.25 gm. q 12 hr.	All types except neomycin, polymyxin	.....	None	Life saving treatment, afebrile within 48 hr. after 1st dose. Required 2 courses of treatment. Ten days apart for septicemia following catheterization.
7. Postoperative cesarean section with pelvic hematoma, pyelonephritis acute.	34 F	Normal	E. coli: <10	0.25 gm. q 12 hr. × 8 Total: 2.0 gm.	Usual plus streptomycin	Sterile	Granular casts	Afebrile 24 hr. after cessation of therapy. Follow-up 1 mo.
8. Postoperative radical panhysterectomy for carcinoma cervix, stricture right ureter with hydronephrosis and chronic urinary tract infection.	28 F	Normal	E. coli: <10	0.25 gm. q 12 hr. × 8 Total: 2.0 gm.	Sulfonamides	Sterile	None	Afebrile within 6 hr. after initial dosage.
9. Recurrent carcinoma, Bartholin duct. Chronic cystitis.	56 F	Normal	B. proteus, Ps. aeruginosa: <10	0.125 gm. q 12 d. × 5 Total: 0.62 gm.	Usual	Sterile	None	Cured. 14 days follow-up.
10. Sarcoma uterus, vesicocutaneous fistula. Chronic urinary tract infection. Hydronephrosis.	44 F	Impaired: Urea 52 mgm. %	A. aerogenes E. coli: <10	0.25 gm. q 12 hr. × 8 Total: 2.0 gm.	Sulfonamides	Sterile	None	Symptomatic improvement. Slight remission 8 days.
11. Chronic urinary tract infection. Diabetes.	51 F	Normal	A. aerogenes: <10	0.25 gm. q 12 hr. × 4 Total: 1.0 gm.	Usual	Sterile	None	Improved. Culture sterile at 12 days follow-up.
12. Cancer lung, BPH, Urethral stricture with indwelling catheter.	48 M	Normal	Paracolon Ps. aeruginosa A. aerogenes: <10	0.5 gm. q 12 hr. × 4 Total: 2.0 gm.	Usual plus streptomycin	Ps. aeruginosa	None	No clinical improvement except a decrease in pyuria.
13. Pyelonephritis, postoperative ureterectomy. No indwelling catheters.	80 M	Normal	A. aerogenes: <10	0.5 gm. q 12 hr. × 8 Total: 4 gm.	Usual	Sterile	None	Afebrile 24 hr. after first dosage. Marked relief of symptoms.
14. Postoperative TUR prostate, bilateral ureteral-vesical obstruction, indwelling urethral catheter.	69 M	Normal	B. proteus E. coli: <10	0.5 gm. q 8 hr. × 8 Total: 6 gm.	Usual plus streptomycin	Ps. aeruginosa	None	Temporary improvement, afebrile 3 days. Prompt reinfection with Ps. aeruginosa.
15. Postoperative colectomy, acute renal failure: urinary tract infection in diuretic phase.	57 M	Impaired: Creatinine 2.7 mgm. %, urea 131 mgm. %	E. coli Paracolon: <10	0.25 gm. q 12 hr. × 4 Total: 1 gm.	Usual plus streptomycin	Sterile	Granular casts 1 + protein	Temporary improvement, reinfection 10 days after neomycin therapy with B. proteus, E. coli and Paracolon.

Diagnosis	Age Sex	Initial Renal Function	Initial Culture Sensitivity Mg./ml.	Dosage	Previous Therapy	Culture After Therapy	Toxicity	Results
16. Postoperative abdominal-perineal resection. Urinary tract infection.	55 M	Normal	B. proteus A. aerogenes Enterococci Ps. aeruginosa	0.5 gm. q 12 hr. \times 8 Total: 4.0 gm.	Usual plus streptomycin	(Few colonies) Ps. aeruginosa	None	Symptomatic improvement, afebrile within 12 hr. after initial dosage.
17. Postoperative laminectomy for spinal fusion. Urinary tract infection.	55 F	Normal	A. aerogenes: <10	0.5 gm. q 12 hr. \times 4 Total: 2.0 gm.	Usual	Sterile	Casts, 1+ protein for 1 day	Afebrile 8 hr. after first dosage. No recurrence 1 yr. follow-up.
18. Meningocele with hypotonic bladder and incontinence.	16 M	Normal	Paracolon: <10	0.5 gm. q 8 hr. \times 9 Total: 7.0 gm.	Usual	Sterile	None	Temporary improvement. Recurrence in 2 mo.
19. Agenesis right kidney, bladder neck obstruction, indwelling catheter.	25 M	Normal	E. coli Paracolon: <10	0.5 gm. q 12 hr. \times 7 Total: 3.5 gm.	Usual plus streptomycin	Sterile	None	Afebrile 12 hr. after initial dose, with symptomatic improvement. Late reinfection with B. proteus, Ps. aeruginosa.
20. Spinal cord tumor with cord bladder, indwelling catheter.	54 F	Normal	Paracolon: <10	0.5 gm. q 12 hr. \times 3 Total: 1.5 gm.	Usual plus streptomycin	Sterile	None	Cured. 4 mo. follow-up.
21. Hodgkin's disease. Pyelonephritis, chronic. Solitary kidney.	31 M	Impaired: Urea 60 mgm. %	E. coli: <10	0.5 gm. q 12 hr. \times 4 Total: 2.0 gm.	Usual	Sterile	Granular casts 1+ protein	Remission after 12 days.
22. Postoperative TUR prostate.	71 M	Normal	Paracolon: <10	0.5 gm. q 12 hr. \times 4 0.25 gm. q 12 hr. \times 2 0.125 gm. q 12 hr. \times 8 Total: 3.5 gm.	Usual	Sterile	None	Afebrile within 12 hr. after initial dosage. Complete symptomatic relief, although reinfection with Ps. aeruginosa in 8 days.
23. Carcinoma prostate with metastases. Indwelling catheter.	71 M	Normal	Ps. aeruginosa Paracolon, E. coli Enterococci	0.5 gm. q 12 hr. \times 9 Total: 4.5 gm.	Sulfonamides	Ps. aeruginosa	Granular casts 1+ protein	No change except for marked decrease in pyuria.
24. Ureterovesical stricture.	5 M 45 lb.	Normal	B. proteus: <10	0.25 gm. q 12 hr. \times 3 Total: 0.75 gm.	Usual plus streptomycin	Sterile	None	Cured. 1 yr. follow-up.
25. BPH, indwelling catheter.	66 M	Normal	Paracolon Ps. aeruginosa: <10	0.5 gm. q 12 hr. \times 3 Total: 1.5 gm.	Usual	Ps. aeruginosa	None	Afebrile 12 hr. following initial dose. Sterile culture after removal of catheter.
26. Horseshoe kidney, hydronephrosis, prostatic obstruction with urethral catheter.	23 M	Normal	A. aerogenes: <10	0.5 gm. q 12 hr. \times 6 Total: 3.0 gm.	Usual	Sterile	None	Afebrile 24 hr. following initial dose. Reinfection after 1 mo.
27. Postoperative TUR prostate, pyelonephritis.	68 M	Normal	E. coli: <10	0.5 gm. q 12 hr. \times 6 Total: 3.0 gm.	Usual plus streptomycin	Sterile	None	Prompt symptomatic response. Afebrile 18 hr. after first dosage. Late reinfection B. proteus in 3 mo.
28. Postoperative TUR prostate, urethral stricture, with indwelling catheter, pyelonephritis.	67 M	Normal	E. coli: <10	0.5 gm. q 12 hr. \times 3 Total: 1.5 gm.	Usual	Sterile	None	No recurrence after 20 days.
29. Diabetes, pyelonephritis, acute.	60 F	Normal	A. aerogenes: <10	0.5 gm. q 12 hr. \times 10 Total: 5.0 gm.	Usual	Sterile	None	Prompt symptomatic relief. Afebrile 6 hr. after initial dosage, 2 mo. follow-up.
30. Postoperative esophagectomy with esophago-pleural fistula. Urinary tract infection.	69 F	Normal	E. coli: <10	0.5 gm. q 12 hr. \times 7 Total: 3.5 gm.	All types except neomycin	Sterile	None	Culture remained sterile until death from postoperative complications.
31. Postoperative arthrodesis hip, cystitis with indwelling catheter.	43 M	Normal	E. coli: <10	0.5 gm. q 12 hr. \times 5 Total: 2.5 gm.	Usual	Sterile	None	Afebrile 24 hr. after initial dose. Cured. 2 mo. follow-up.

NOTE: Usual antibiotics include tetracyclines, penicillin, sulfonamides, chloramphenicol.

Abbreviations:
BUN=Blood urea nitrogen.

NPN=Nonprotein nitrogen.
PSP=Phenolsulfonphthalein.

BPH=Benign prostatic hypertrophy.
TUR=Transurethral resection.

dosage schedule slightly heavier than that used in the series here reported upon. Neomycin should therefore be administered only to selected patients.

Even though the therapy failed in 10 of the 31 patients, the results still would actually denote pronounced therapeutic effectiveness. All the patients had severe or chronic urinary tract disease and infection that did not respond to other forms of therapy and they were given neomycin as a "last resort." All but one of the patients in whom neomycin therapy failed had accompanying obstructing lesion with irreversible disease. In general, the *in vitro* sensitivity of bacteria to neomycin in concentrations of less than 10 mcgm. per milliliter would indicate a potentially satisfactory *in vivo* result. There was good correlation between results of testing *in vitro* and the *in vivo* response. In patients with impaired renal function, neomycin therapy need not be withheld if it might be a life-saving measure; however, there should be close watch for both ototoxic and nephrotoxic effects. Therapeutic response is frequently so rapid and striking that only a day or two of treatment may result in dramatic improvement in these patients. In the present small series, patients with impaired renal function tolerated therapy as well as those with normal function.

The authors have been impressed with the frequency of the enhancement of neomycin effect *in vitro* when other antibiotics are added to it. This consideration is even more worthwhile when *in vitro* testing reveals only moderate sensitivity and when seriously impaired renal function would make very low dosage and short duration of neomycin therapy more desirable. Polymyxin was used simultaneously

in one of the cases in this series and tetracycline in another. Both patients had mixed infections.

CONCLUSIONS

Neomycin is a useful antibiotic in urinary tract infections caused by Gram-negative organisms which are neomycin-sensitive and resistant to other agents.

A dosage schedule of 0.5 gm. every 12 hours for ten doses appears to be therapeutically effective and relatively safe in adults with normal renal function.

Patients receiving the drug should be closely followed for potential nephrotoxicity and ototoxicity.

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REFERENCES

1. Nesbit, R. M., Dodson, A. I., Jr., and Mackinney, C. C.: Neomycin in the treatment of urinary tract infections, *Antibiotics and Chemotherapy*, 2:447-452, 1952.
2. Pulaski, E. J.: Current therapeutics—neomycin, *Practitioner*, 170:669-676, 1953.
3. Rantz, L. A., and Rantz, H. H.: Sensitivity of various clinically important bacteria to four antibiotics: Results obtained with a plate screening method, *Stanford Med. Bull.*, 11:183-187, 1953.
4. Roantree, R. J., and Rantz, L. A.: Treatment of urinary tract infections with neomycin, *Antibiotic Medicine* (in press).
5. Waisbren, B. A., and Spink, W. W.: A clinical appraisal of neomycin, *Ann. Int. Med.*, 33:1099-1119, 1950.
6. Waksman, S. A., and Lechevalier, H. A.: Neomycin, a new antibiotic against streptomycin-resistant bacteria, including tuberculous organisms, *Science*, 109:305, 1949.



Congenital Aganglionic Megacolon

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THE PRESENT CONCEPT of the cause of congenital aganglionic megacolon (Hirschsprung's disease) is the result of half a century of studies beginning with the pathological reports by Tittel⁶ (1901) and culminating in the widespread acceptance of the experimental and clinical studies of Swenson and co-workers^{3, 4, 5} (1948-1949). This concept assumes the presence of an area of colon (usually rectosigmoid) in which the ganglion cells of the myenteric plexuses are congenitally absent, resulting in a lack of coordinated peristaltic activity. The dilation and hypertrophy of the proximal colon is a compensatory phenomenon. Swenson revived and applied to this problem a procedure consisting of coloproctectomy with reconstruction of the alimentary tract by a "pull-through" (1948) and has since performed over one hundred such operations. Pull-through procedures were first performed in the Los Angeles Children's Hospital in 1949. The first patients included five children with long standing megacolon. Fourteen additional patients were subjected to resection during the subsequent five years.

The clinical material from this pediatric center was studied with emphasis on the following: (a) An evaluation of the pull-through procedure and its modifications in the treatment of megacolon and (b) a study of this disease as it appears in early infancy. The operative cases from 1949 through 1954 form the basis for the former evaluation, (a); and all neonatal cases from 1943 to 1954 were surveyed in the later study (b).

EVALUATION OF PULL-THROUGH PROCEDURE

Operative Clinical Material

Nineteen children with aganglionic megacolon were treated by coloproctectomy and pull-through reconstruction or a similar procedure (total of 23 operations) during the five-year period 1949-1954. The diagnosis was established by pathological examination of the operative specimen in all cases and confirmed by subsequent autopsy in four cases. Fifteen male and four female children were included in the operative group. The age at the time of the first hospitalization for megacolon varied from two days to 15 years (average 2.8 years). The age at the

• Twenty-one pull-through procedures for congenital aganglionic megacolon (Hirschsprung's disease) have been performed at the Los Angeles Children's Hospital since the adoption of the etiological concept of a distal aganglionic segment in 1949. In 14 cases the Swenson procedure as modified by Hiatt was employed, with perineal excision of the colon segment. There were four postoperative deaths and three symptomatic recurrences in this group. Three patients were treated by transabdominal resection of colon and rectum with subsequent pull-through reconstruction (Swenson). Anterior resection (State) was carried out in two cases. Three children with recurrence of symptoms following primary operation were subjected to a secondary pull-through procedure with an eventual successful outcome. The major portion of the postoperative mortality (29 per cent) in this group occurred in infants less than six months of age in whom anastomotic disruption or proximal segment infarction occurred after operation.

A study of 31 cases of congenital aganglionic megacolon in very young infants drew attention to the difficulty of establishing a diagnosis in this age group even at exploratory laparotomy. Among these infants the mortality rate was excessive, regardless of the form of therapy employed. Colostomy appeared to be the indicated surgical procedure if a conservative regimen failed to control intractable colonic obstruction during the first year of life.

time of the definitive operation varied from one month to 15 years (average 3.6 years). In recent years the operation has usually been performed on patients between the ages of two and three years, and no child over the age of five has been operated upon for megacolon in this hospital since 1952.

History and Physical Findings

Constipation was the universal principal symptom. A history of low intestinal obstruction dating from the first six months of life was obtained in all cases. Bowel evacuation problems in the postnatal month were described in 17 children; and approximately 50 per cent of the entire group were said never to have had a spontaneous bowel movement. Children who had defecation without enemata (approximately 50 per cent) usually passed a massive stool one or two times each week, particularly after the first year of life. The sand-like nonfecal character of the stools of these children was unique.

Vomiting occurred during obstructive episodes in

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TABLE 1.—Congenital Aganglionic Megacolon. Results of Operative Procedures Employed (1949-1954)

Type of Operation	Total No.	Postoperative Deaths	Second Operation Required	Ultimate Result	
				Poor	Good
1. Perineal colon resection (pull-through)....	14	5	3	1	8
2. Abdominal colon resection (pull-through)	3	1	0	0	2
3. Lower anterior resection.....	2	0	1	0	2
Total.....	19	6	4	1	12

eight children. Diarrhea alternated with constipation in five cases, and in four the abdominal distention was so great as to cause respiratory embarrassment. When the home care was energetic—daily effective enemata—the more striking symptoms were usually absent after the first year.

Severe malnutrition with retardation of growth was noted in three children. No definite evidence of malnutrition or retardation of any type could be detected among the remaining patients who survived infancy. Three major associated congenital anomalies (mongolism, patent ductus arteriosus and congenital hydronephrosis) were present in the cases in which autopsy was done. The physical findings associated with congenital aganglionic megacolon were unique only among the older children with low intestinal obstruction in whom the thick-walled, dilated colon could be readily palpated.

Roentgen Studies

Roentgenographic visualization with barium enema in all cases (19 children) showed dilation of the proximal colon with characteristic narrowing in the lower rectosigmoid or upper rectum to the caliber of normal bowel. In two infants this vital diagnostic feature was at first equivocal, although it became definite before the age of one year. The distal extent of the aganglionic segment was incorrectly predicted by barium enema studies in two instances, resulting in incomplete rectal resection. Following a successful pull-through procedure, x-ray studies uniformly showed a return of the remaining colon to normal caliber and configuration. Plain films of the abdomen did not aid in distinguishing congenital aganglionic megacolon from other forms of subacute intestinal obstruction in early infancy. Retention of a mass of barium given as an enema, retained and desiccated, was a major complication in the preoperative preparation of two children.

Operative Findings

At the initial abdominal exploration the extent and degree of colonic dilation was extremely variable. The difficulty in recognizing the disease in early infancy will be discussed in the subsequent section. Following colostomy the bowel returned to normal caliber and appearance when seen at subsequent abdominal exploration (two cases). In the

older infants and children in the present series the conventional dilation from the midtransverse colon to the rectosigmoid was noted in five cases. In addition to the conventional pattern, the ascending colon was dilated in five additional patients. The sigmoid alone was the site of dilation in three children. "Skip" areas of dilation in both right and left colon were noted in one infant. In one the dilation extended into the rectum but not to the anal sphincter.

The average length of colon resected was 18.1 cm. This average included several minimal resections performed early in the series. In later years, resections were between 20 cm. and 30 cm. in length and included the major portion of the descending colon, sigmoid colon, and rectum.

Operative Procedures

Three operative techniques were employed in this series. Swenson's procedure as modified by Hiatt⁵ was used in 14 cases. The rectum and colon were resected from below following complete intussusception of the distal bowel, and the anastomosis was made at the perineum, and inverted. There were four postoperative deaths and three recurrences in this group (Table 1).

In three cases a transabdominal resection of the dilated colon (Swenson) was performed, followed by intussusception of the distal stump and anastomosis at the perineum. One patient died after operation. There were no recurrences.

In two cases a low anterior resection (State)² was performed. In only one of these was a complete left colectomy performed, however. One recurrence occurred; it was successfully treated by a pull-through procedure.

Since 1953, serial "frozen sections" have been taken at the operating table to determine the extent of the aganglionic area. At first both the proximal and distal ends of the proposed segment for resection were examined for the presence of ganglion cells in the myenteric plexuses. Recently the dissection has been carried distally to within several centimeters of the anus (region of the internal sphincter) without regard to the presence of ganglion cells in the rectal wall. There has been no recurrence of obstructive megacolon since the introduction of this technique. All patients with previous

TABLE 2.—Deaths and Major Complications Following Pull-Through Procedures for Congenital Aganglionic Megacolon

Postoperative Complications	Total Number With Complications	Nonfatal	Fatal
1. Recurrence of symptoms; inadequate colon resection.....	4	3*	1
2. Infarction of proximal segment; anastomotic separation.....	3	0	3
3. Anastomotic stricture	1	0	1†
4. Inadequate blood replacement.....	1	0	1‡
5. Intestinal obstruction due to postoperative adhesive bands....	1	1	0
Total.....	10	4	6

* All successfully treated by secondary colon resection.

† Fatality due to cardiac arrest during secondary procedure.

‡ Parents religious convictions prevented adequate blood replacement.

incomplete resections were relieved of symptoms by the resection of an additional segment of the colon or rectum.

A series of "step frozen sections" are taken at intervals of 5 to 6 cm., beginning in the dilated rectosigmoid colon. An average of six such sections were required. Two techniques for excision of tissue for "frozen section" study were employed. In one of them, a small segment of the full thickness of the colonic wall was removed, while in the other a segment of the muscular layers was excised without opening the mucosa.

An attempt was made to sterilize the colon in preparation for operating by giving antibiotics or chemotherapeutic agents by mouth. Succinyl sulfathiazole was used in early cases, later the tetracycline drugs, and in the more recent procedures neomycin, 250 mg. every six hours for three days.

Preliminary Colostomy

Ten patients with congenital aganglionic megacolon required colostomy decompression (appendicostomy in one case) because of failure of enemata to relieve obstruction. The oldest infant in this group was four months of age. In all other infants and children decompression and preparation for operation was carried out without need for colostomy.

Four of the patients died following colostomy, the oldest at four months of age. Two children are awaiting definitive operation with well functioning colostomies. Attempt was made to perform pull-through procedures following colostomy in three patients less than six months of age, and two of them died (see Table 3).

Postoperative Deaths and Complications

There were six postoperative fatalities and four additional major, nonfatal complications following these 23 operative procedures. In three cases death followed local infarction of the proximal segment of colon or was associated with apparent anastomotic disruption. The unique aspect of this group was the extraordinarily low age at which the pull-through procedure was attempted (three weeks, three months,

and five months of age). There seemed to be no other common factor. Three additional complications in three children included: (a) Stricture at the site of anastomosis, (b) inadequate blood replacement, and (c) intestinal obstruction secondary to postoperative adhesive bands. The first two complications mentioned were fatal.

Obstructive symptoms recurred in four children, usually beginning within a month after the initial pull-through procedure. One died as a result of the complications of intestinal obstruction before a second resection could be performed. The three others were successfully treated by additional resection of colon or rectum. Four patients with mild anastomotic stricture responded to digital dilation and required no further operation.

ACUTE INTESTINAL OBSTRUCTION IN EARLY INFANCY

Among 31 patients with congenital aganglionic megacolon (operative and nonoperative) seen in this hospital since 1943, 26 required hospitalization for intestinal decompression during the first six months of life. The initial operative procedure or medical management was carried out in other institutions in most instances. In all of these patients, however, the eventual demonstration of an aganglionic segment was possible at operation or by repeated roentgenographic studies with barium enema. Eight of the infants had undergone exploratory laparotomy during the first 14 days of life. The preoperative history in these cases was unusual. The passage of meconium was first noted on the third or fourth day of life. The obstruction was intermittent, often temporarily relieved by enemata. The predominant preoperative diagnoses were volvulus of the midgut, malrotation of the colon or intestinal stenosis.

Operative Findings

Diagnostic observations at laparotomy were meager. In one case the postoperative diagnosis was "volvulus of the sigmoid or descending colon," apparently spontaneously reduced. In three instances no abnormality at all was seen.

TABLE 3.—Results of Therapy in Children with Congenital Aganglionic Megacolon Who Required Hospitalization in Early Infancy for Intestinal Obstruction*

Type of Therapy Employed	Total	Death: Postoperative or in First Year of Life	Lost to Follow-up	Alive at 1 Year	Alive at 2 Years	Pull-Through Operation After 2 Years of Age
Medical regimen (no operation or exploratory laparotomy (7) only	15	3	3	9	8	4
Colostomy or ileostomy.....	7	3	1	3	2	1
"Pull-through" operation during first 6 months of life.....	4	3	0	1†	0	0
Total.....	26	9	4	13	10‡	5

* Emergency hospital admission during the first 6 months of life.

†Died following secondary resection at 16 months of age.

‡Five patients survived to 2 years of age prior to 1949. One of these was asymptomatic thereafter; 3 had severe symptoms during childhood; and one died from the complications of congenital megacolon at 8 years of age.

In two cases the possibility of aganglionic megacolon was discussed or suggested. The correct diagnosis was made at the time of exploration in only two of the eight infants. In the later four cases, mild dilation of the sigmoid colon was described.

The ultimate result of therapy in these eight cases was as follows: (a) Two patients died following a pull-through procedure performed under the age of four months; (b) two died of complications of megacolon, without operation, one at two months and one at 18 months of age; (c) one was lost to follow-up at six months of age; (d) two were successfully treated by a pull-through procedure after the age of two years; (e) one was successfully managed by a medical regimen for over four years. The mortality in this group was thus at least 50 per cent.

DISCUSSION

An operative approach to the problem of congenital aganglionic megacolon utilizing the pull-through principle was adopted in this hospital in 1949 and has been employed in 23 procedures during the subsequent five years. Although the basic operation has not been altered, several modifications and refinements now seem indicated.

The use of the "frozen section" technique in examination of the intestinal wall for ganglion cells in the myenteric plexuses is of great importance in establishing the site for proximal transection of the colon. When unequivocal ganglion cells are recognized by the pathologist in the proximal extremity of the resected segment, the anastomosis may be carried out without fear of recurrent obstruction. Similar studies of the distal margin are of academic interest only. Resection should be carried distally to the lower rectum in all cases without regard to the presence or absence of myenteric ganglion cells.

Both transperitoneal (Swenson) and extraperitoneal (Hiatt) resection of the dilated colon segment gave satisfactory results, and each has apparent virtues. The "step" technique for frozen section examination of the proximal colon can be adapted to either operative procedure. Biopsy specimens of the colon excised without entering the lumen are satisfactory for the recognition of ganglion cells.

In the small series presented, pull-through procedures were hazardous in the first year of life, and in general it is probably advisable to defer such operations beyond infancy. This is in striking contrast with the authors' experience with abdominoperineal procedures for imperforate anus, which are routinely carried out in the neonatal period with a relatively low mortality.

The recognition of congenital aganglionic megacolon in the newborn may be difficult, even at laparotomy. When the condition is known, the patient should be maintained on a medical regimen (enemata). Colostomy should be performed only when obstructive episodes threaten life.

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REFERENCES

1. Hiatt, R. B.: Surgical treatment of congenital megacolon, *Ann. Surg.*, 133:321, 1951.
2. State, D.: Surgical treatment for idiopathic congenital megacolon (Hirschsprung's disease), *S.G.&O.*, 95:201, 1952.
3. Swenson, O., Rheinlander, H. F., and Diamond, I.: Hirschsprung's disease: A new concept of the etiology, *N.E.J.M.*, 241:551, 1949.
4. Swenson, O., Newhauser, E. B. D., and Pickett, L. K.: New concepts of etiology, diagnosis and therapy of congenital megacolon, *Pediatrics*, 4:201, 1949.
5. Swenson, O., and Bill, A. H., Jr.: Resection of the rectum and rectosigmoid with preservation of sphincter for benign spastic lesions producing megacolon: An experimental study, *Surg.*, 24:212, 1948.
6. Tittel, K.: Ueber eine Angeborene, Missbildung des Dickdarmes, *Wien Klin. Wchnsch.*, 14:903, 1901.

Rheumatic Fever in Southern California

Problems Related to Diagnosis

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IN ORDER TO DISCUSS the problem of rheumatic fever particularly as it occurs in Southern California, it is necessary first of all to define what is meant by the term *rheumatic fever*. It is the author's opinion that it must be thought of in its broadest meaning. Most diseases vary widely in the spectrum of their manifestations from the outspoken or unquestioned case to the more mild and difficult case to recognize clinically.

In a susceptible person a wide range of events can take place following streptococcal disease (Chart 1). Streptococci can be present in the nasopharynx of such a person without actually producing disease; in such an instance there is no immunologic evidence of invasion into the tissues by the organism. In another situation, in the same person, the streptococci may actually invade the tissues, producing the usual symptoms of streptococcosis² but not rheumatic fever. In a significant proportion of such susceptible persons, however, a streptococcal infection is followed after a short period by an *unusual* response of *certain tissues*, particularly in the heart, joints and skin. This unusual response will be considered herein to be *rheumatic fever*, whether it be mild or severe.

With rheumatic fever thus defined, certain questions can be posed and an answer will be attempted.

1. Does rheumatic fever occur in natives of Southern California?
2. Is there a difference in the incidence of streptococcal disease in Southern California as compared with other areas in the United States?
3. What is uncomplicated streptococcosis?
4. What are we going to accept as evidence of rheumatic fever?

Existence of Rheumatic Fever in Natives of Southern California

The author has made no inquiry into the actual number of individuals involved; but it is undeniable that rheumatic fever does occur in natives of South-

- Rheumatic fever occurs in natives of Southern California and is a cause of death.

The incidence of streptococcosis in Los Angeles is approximately equal to that in three other major cities in the United States where rheumatic fever is known to occur commonly.

Manifestations of rheumatic fever may range from mild to severe. It is suggested that a greater percentage of patients in Southern California have symptoms of rheumatic fever that are more mild.

Differentiation between prolonged, uncomplicated streptococcosis and rheumatic fever is a major problem. The judicious use of a battery of tests, acute phase reactants, on the same blood sample will frequently help to establish the diagnosis in borderline situations so common to Southern California.

ern California and is a cause of death. Rothman³ reported on a survey he conducted during the five-year period 1939-1943 which was limited to the number of deaths due to rheumatic fever in persons under 19 years of age. The data was obtained from Los Angeles hospitals and was rechecked at the Los Angeles Vital Statistics Bureau. Cases in which rheumatic fever developed prior to residence in California were not included. A total of 25 deaths occurred within the five-year period: Six in 1939, four in 1940, two in 1941, five in 1942 and eight in 1943. Autopsy was done in 17 of the 25 cases. In all the autopsy material one or more of the following were observed: Aschoff bodies; typical rheumatic valvular vegetations; mitral stenosis; pancarditis with no bacteriologic evidence of pyogenic organisms or tuberculosis.

Incidence of Streptococcosis Throughout the United States

A number of studies, including those from the armed services,¹ have shown a close relationship between the general overall incidence of streptococcal disease and the incidence of rheumatic fever. During epidemics of streptococcal disease the incidence of rheumatic fever has shown a proportionate rise, always being about 3 to 4 per cent of those infected with streptococci. In relation to the incidence of rheumatic fever in Southern California, a pertinent question would therefore be, "Is there a difference

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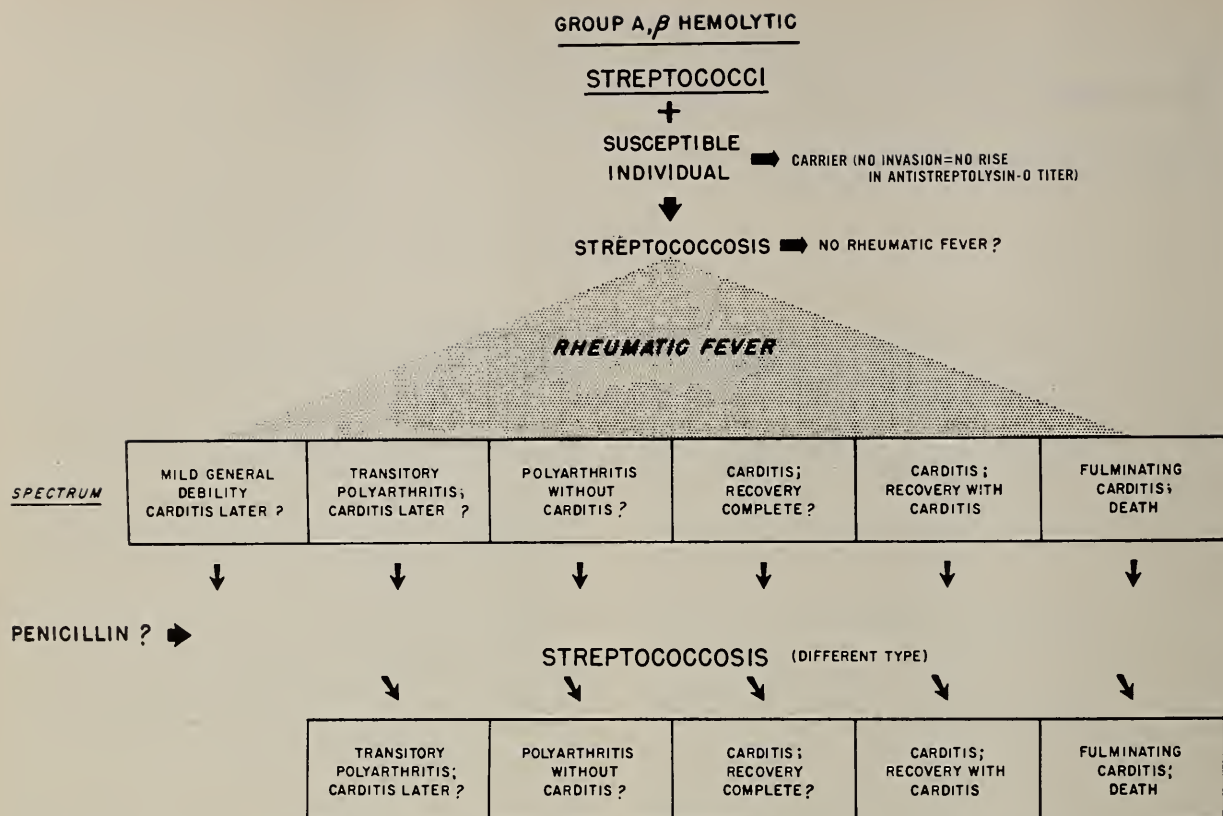


Chart 1.—Diagram illustrating the possible sequence of events when Group A β hemolytic streptococci come into contact with a patient who is susceptible to rheumatic fever. In instances in which rheumatic fever is a sequel, note the wide *spectrum* of possible manifestations of the disease.

in the incidence of streptococcal disease as compared with other parts of the United States?" Data obtained from Health Department reports would indicate that there is no pronounced difference in the incidence of streptococcosis between New York, Chicago, Salt Lake City and Los Angeles, when morbidity rates are considered. This is in spite of the fact that the first three mentioned cities are considered to have a high incidence of rheumatic fever. Chart 2 shows comparative rates for the cities Los Angeles and New York for the years 1930 to 1954.

What Is Uncomplicated Streptococcosis?

It would appear that whatever one is willing to accept as evidence of uncomplicated streptococcosis must automatically help to define what can be accepted as evidence of rheumatic fever. Can such a separation be made? Certainly the extreme ends of the spectrum reveal obvious differences, but can one draw a line in the center of the spectrum that separates streptococcosis from rheumatic fever?

Perhaps the problem could be resolved by definition based on a statistical concept. This way, knowing the response of the average person to the streptococci and knowing the variations of the response out to three standard deviations from the mean, one

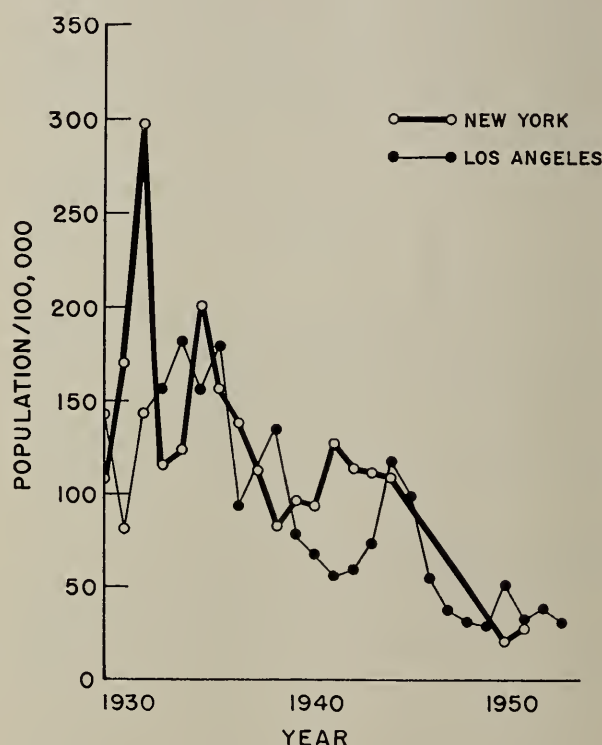


Chart 2.—Incidence of streptococcosis per 100,000 population in New York and Los Angeles.

TABLE 1.—Serologic Data—Normal Values for Acute Phase Reactants

Determination	Number of Individuals	Mean	Minimum	Maximum	Measurement
Mucoprotein-tyrosine	76	3.3	1.8	4.3	Mg. per 100 cc.
Antistreptolysin-0 titer	67	55	0	333	Todd units
C-reactive protein	76	0	0	2+	Mm. of precipitation
Nonglucosamine polysaccharides..	75	116	85	148	Mg. per 100 cc.
Sedimentation rate .....	...	7	3	11	Mm. in 1 hour (Westergren)

TABLE 2.—Serologic Data—Acute Phase Reactants in Various Disease States

Condition	Sedimentation Rate	Mucoprotein-Tyrosine	Antistreptolysin Titer	C-Reactive Protein	Nonglucosamine Polysaccharides
Acute respiratory disease	Normal or slightly increased	Normal or slightly increased	Normal	±	Normal or slightly increased
Streptococcosis	Normal or slightly increased	Normal or slightly increased	Increased	±	Normal or slightly increased
Acute rheumatic fever	Increased	Increased	Increased	+	Increased
Acute glomerulonephritis	Increased	Increased	Increased	+	Increased
Acute rheumatoid arthritis	Increased	Increased	Normal	+	Increased
Smoldering rheumatoid arthritis	Normal	Increased	Normal	±	Increased
Inactive rheumatic fever	Normal	Normal	Normal	0	Normal
Malignancy	Increased	Increased	Normal	+	Increased
Lupus erythematosus	Normal or increased	Increased	Normal	±	Increased

could then call *abnormal* any response which was greater than three standard deviations from the mean. In more specific terms, this response would be measured by such items as:

1. Prolonged symptoms of acute infection following streptococcosis—that is, fever, malaise, anorexia, tachycardia, evanescent pain.

2. Prolonged laboratory evidence of acute infection following streptococcosis—anemia, leukocytosis, conduction disturbances on the electrocardiogram, and elevation of the acute phase reactants.

By such a technique one could arbitrarily define uncomplicated streptococcosis and rheumatic fever. This would do little to help toward an understanding of the fundamental disturbance or disturbances in rheumatic fever, but perhaps it would permit clearer thinking regarding the problem as it relates to Southern California where the extreme end of the spectrum of severe rheumatic fever is less commonly seen.

Value of the Acute Phase Reactants

In borderline situations such as those referred to in the foregoing paragraphs the performance of a battery of the acute phase reactant tests on the patient's blood will frequently help to establish the correct diagnosis when taken into account with the

clinical findings. The performance of such a battery of tests is analogous to the situation in liver diseases where one seldom performs a single liver function test, but rather uses a battery of tests to establish the diagnosis. The acute phase reactants are: Sedimentation rate, antistreptolysin-0 titer, mucoprotein-tyrosine, C-reactive protein, nonglucosamine polysaccharides, hexosamine polysaccharides, hyaluronidase inhibitor, complement. Normal values for certain of these acute phase reactants as determined in the laboratory of the department of pediatrics at the University of California at Los Angeles School of Medicine are shown in Table 1.

For the past two to three years the laboratory has been making such determinations in a number of situations. The results are summarized in Table 2. In analyzing this table it is obvious that the main difference between acute respiratory disease of nonstreptococcal origin and streptococcosis is the increased antistreptolysin titer found in streptococcosis. In acute rheumatic fever, all of the acute phase reactants are elevated and usually greatly so. The same is true for acute glomerulonephritis. In acute rheumatoid arthritis all of the acute phase reactants are generally elevated except the antistreptolysin titer. Why this is so is not apparent at present, but certainly this can be helpful in differentiating these two rheumatic diseases that are so

greatly different as to prognosis. In smoldering or subacute rheumatoid arthritis generally only the mucoprotein is elevated. In malignant disease and lupus erythematosus the acute phase reactants are generally elevated except for the antistreptolysin titer.

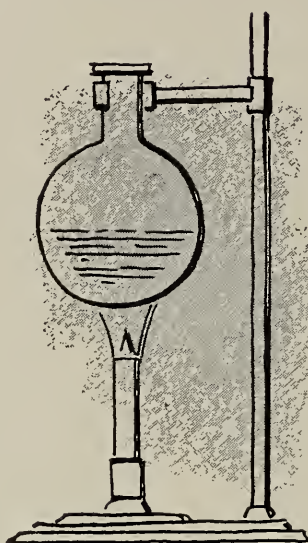
To repeat, the main value in such a battery of tests, performed on the same specimen of blood, would be to help differentiate these conditions, one from another, in borderline situations. Since this is so common a problem in Southern California, such

a battery of tests is highly desirable and can be readily performed by the average good laboratory.

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REFERENCES

1. Coburn, A. F., and Young, D. C.: The Epidemiology of Hemolytic Streptococcus, Williams and Wilkins, Baltimore, 1949.
2. Powers, G. F., and Boisvert, P. L.: Age as a factor in streptococcosis, *J. Ped.*, 25:481, 1944.
3. Rothman, P. E.: A note on the incidence of rheumatic fever in Los Angeles, *Calif. Med.*, 71:138, 1949.



An Improved Intravenous Contrast Medium

Preliminary Studies with Hypaque®

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DURING THE last two decades there have been many substances used for intravenous urography and constant work is being done to develop a contrast medium which is nontoxic and has a good radiographic density. The purpose of this presentation is to report on the use of a new iodine-containing compound, Hypaque,® in 50 consecutive examinations.

Hypaque (sodium 3,5-diacetamido-2,4,6-triiodobenzoate) is a white crystalline solid which contains 59.87 per cent iodine and is highly soluble in water. The iodine content of Hypaque is slightly less than that of Urokon® (sodium acetrizoate 3-acetylaminobenzoic acid) which contains 65.8 per cent iodine. Diodrast® (3,5-diiodo-4-pyridone-N-acetic acid diethanolamine) contains 49.8 per cent iodine and Neo-iopax® (sodium iodomethamate, disodium salt of N-methyl-3,5-diiodochelidamic acid) contains 51.5 per cent iodine.

In anesthetized dogs, rapid injection of Hypaque in dosage up to 4,000 mg. per kilogram of body weight produced no change in the heart rate, blood pressure, respiration, or autonomic function.⁵ At a dosage of 8,000 mg. per kilogram, respiratory arrest and later cardiac arrest occurred. It was also found that there was slight inversion of the terminal portion of the T-wave at the 1,000, 2,000, 4,000 mg. per kilogram dose levels. The compound was excreted almost entirely through the kidneys. The rate of excretion was rapid since most of the administered drug was eliminated within two hours and over 90 per cent was excreted within 24 hours. Porporis³ has reported similar results in excretion studies using Urokon.

In tests with rats, cats and mice, it was observed that the acute toxicity of Hypaque was less than that of other contrast media.⁵ Rhesus monkeys receiving Hypaque intravenously had no casts in the collecting tubules whereas in monkeys receiving various other media, casts developed in the collecting tubules of the kidneys. With toxic doses, Hypaque and the other contrast media produced similar reversible pathological changes in the kidneys, liver and lungs.

All material used in this study was supplied by Winthrop-Stearns, Inc.

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Submitted July 22, 1955.

• A relatively new intravenous opaque medium, Hypaque® in 50 per cent solution, was used in 50 consecutive patients. None of them had a serious reaction. Twenty-two had mild reactions which were of no clinical significance. The radiographs obtained seemed to be equal in quality to those obtained with other contrast media.

METHOD OF STUDY

The patients were prepared for excretory urography in the usual manner. Before injection, a history was obtained with regard to allergic sensitivity and previous reactions to other compounds containing iodine. Temperature, pulse rate, respiration rate and blood pressure were recorded before the radio-

TABLE 1.—Reactions in 50 Patients Following Intravenous Injection of 30 cc. of 50 Per Cent Hypaque®

Symptoms	No. Patients with Reaction	Severity	Duration
Nausea	4	Minimal	1 or 2 minutes
Vomiting	0		
Excessive sweating	1	Minimal	Seconds
Excessive salivation	2	Minimal	During entire examination
Choking sensation	0		
Wheezing	0		
Dyspnea	0		
Cyanosis	0		
Flushing of skin	2	Minimal	2 to 3 minutes
Extreme pallor	0		
Pruritus	0		
Facial edema	0		
Sneezing	0		
Urticaria	1	Localized to neck, minimal	3 minutes
Venospasm (Local infiltration?)	2	Mild	3 minutes to few seconds
Other reactions—Bitter taste, peculiar taste	4	Mild	Few minutes
Elevation of temperature 1½ minutes after injection	1	Minimal	
Fall in systolic blood pressure	4	Minimal	
Increase in pulse	1	Minimal	
Total.....	22		

graphic examination was begun. A sensitivity test, in which 2 cc. of Hypaque was injected intravenously, was done in each case. Following this, 30 cc. of 50 per cent Hypaque was injected in approximately 30 to 45 seconds. Fifteen and thirty minutes after injection, the pulse, temperature, respiration and blood pressure were again recorded. All reactions, even those of a minor nature, were tabulated (Table 1). Radiographs were taken at 5, 10, 25, and 45 minutes after injection of Hypaque.

REACTIONS

In 50 consecutive examinations, there were 22 patients who had minor reactions (Table 1). Immediately after injection, four patients experienced a slightly bitter or metallic taste. During the first 15 minutes after injection, four patients had a decrease in systolic blood pressure ranging from 10 to 20 mm. of mercury. However, the blood pressure was back to normal at the termination of the examination. Two patients had slight pain in the shoulder which could have been attributed to venospasm. The pain lasted a few seconds in one patient, and in the other it persisted for two or three minutes. One patient had mild urticaria. It was localized to the neck.

The remaining ten patients had minimal symptoms which included slight nausea or a slight feeling

of flushing. None of the patients had severe nausea and none vomited. All of the reactions recorded were minor and were considered insignificant.

The series was too small, of course, to permit acceptable conclusions, but the incidence of reactions compared very favorably with the incidence reported with Diodrast,² Neo-iopax⁴ and Urokon.¹

Although no specific measurements were made of the density of the excreted contrast medium, it was the impression of the authors that the radiographs were equal in quality to those obtained with other contrast media.

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REFERENCES

1. Friedman, L. J., Friedenber, R., and Love, L.: Intravenous urography by rapid injection; further results with an improved method, *A. J. R.*, 67:433-441, March 1953.
2. Pendergrass, E. P., Chamberlin, G. W., Godfrey, E. W., and Burdick, E. D.: A survey of deaths and unfavorable sequelae following the administration of contrast media, *A. J. R.*, 48:741-762, Dec. 1942.
3. Porporis, A. A., Gladden, V. E., Fischer, G. L., and Mueller, C. B.: The mechanism of Urokon excretion, *A. J. R.*, 72:995-1003, Dec. 1954.
4. Robbins, L. L., Colby, F. H., Sosman, J. L., Eyler, W. R.: Excretory urography: A clinical trial of a new contrast medium (sodium 3-acetylamino-2,4,6-triiodobenzoate), *Radiology*, 56:684-688, May 1951.
5. Winthrop-Stearns, Inc.: Laboratory data from Department of Medical Research.



Meningoencephalitis and Pneumonitis Due to Western Equine Virus

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WESTERN EQUINE ENCEPHALITIS is defined as a neurotropic virus disease of the nervous system.¹ It is an immunologically and pathologically distinct disease.^{1, 2, 8, 10, 11, 12} The term encephalomyelitis appears to be a misnomer which should be discarded in favor of meningoencephalitis, or just encephalitis;^{3, 5} meningeal involvement was noted in all cases in which autopsy was done in a series herein reported upon, and in all clinical cases there was at least equivocal evidence of meningeal irritation.

Any discussion of the encephalitides *in general* would be completely unrealistic, for the clinical features, sequelae, mortality and etiologic factors are widely variable as between patients and specific disease entities. What is known of encephalitis lethargica for example, does not necessarily apply to Western equine encephalitis; and although poliomyelitis is not often thought of as encephalitis, actually nonparalytic poliomyelitis is a true meningoencephalitis. In the present series of 20 cases only two patients gave a history of localized weakness and in only one was any objective evidence of localized weakness noted clinically. Since clinical evidence of meningitis was present in many cases in the series and myelitis was relatively rare, it is felt that the term Western equine encephalomyelitis should be dropped except in cases in which myelitis is indeed present.

ETIOLOGY

The Western equine encephalitis virus was isolated in horses in 1931 in the San Joaquin Valley by Meyer, Haring and Howitt.⁶ It was isolated in human cases in 1938.¹² The Western equine encephalitis virus is a medium-sized virus and all four of Koch's postulates have been fulfilled in establishing it as an etiologic agent in encephalitis. However, it is clinically indistinguishable from the other encephalitides except for the help given in diagnosis by the known geographical distribution of the encephalitides.

The recently reported California encephalitis virus⁹ is probably only one of several encephalitis viruses which have not yet been isolated. In this

• In a series of 20 cases here presented in a study of Western equine encephalitis, only ten were conclusively proven by serological or histopathological methods, while the other ten were presumptively cases of that disease. Involvement of the spinal cord was of relatively low incidence. In only one case of four in which autopsy was done could the Western equine virus be demonstrated in the cerebral tissues.

There was a rather high incidence of involvement of the respiratory tree. A high proportion of patients had complaints referable to the respiratory tract. Physical signs denoting disease of both the upper and lower respiratory tract, x-ray evidence showing bronchial and pulmonary involvement, and autopsy evidence of bronchopneumonia were noted frequently.

All patients had fever as well as symptoms and physical signs of central nervous system disease. Differential diagnosis posed many interesting and challenging problems.

The clinical features were those of meningoencephalitis and never a "flu-like" syndrome, although in several of the cases diagnosis could not be made with certainty for several days, until meningeal signs developed, and usually the patients were treated with one or several antibiotics during that time.

In all cases in which a neutralization test for the Western equine virus was done, the result was either positive or inconclusive. Results of complement fixation tests were significant in only six cases. In seven of 13 cases in which x-ray films of the chest were made, streaks of increased density were noted.

connection it may be noted that when the author first started summarizing cases from the Tulare County Hospital files during the height of the epidemic of 1952, there were about 30 cases that seemed likely to be later proven Western equine encephalitis. Yet each time the cases were reviewed, the number became smaller. Many of the patients had received antibiotics and it was impossible to be certain on admission whether the condition was a healing bacterial meningitis, nonparalytic poliomyelitis, or encephalitis. Some cases were never clinically distinguished from nonparalytic poliomyelitis. Many of the cases that were excluded from the series were probably encephalitis. A few of the cases that were included may be open to criticism. Finally the series was narrowed down to 20 cases,

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of which only ten were proven beyond shadow of doubt to be Western equine encephalitis.

Finley and Hollister⁵ stated that a proven case of Western equine encephalitis is one in which there is demonstrable antibody titer rise in the patient's blood or the virus is isolated from brain tissue. Hamilton⁸ also expressed the opinion that the diagnosis must rely on complement fixation or neutralization tests. In six cases in the present series, definitely positive titers were shown on serial complement fixations. In the others the complement fixation test results were either negative, inconclusive because of a low or nonrising titer, or were not done because the patient died too soon. In only two cases were the results of neutralization tests definitely positive. In seven other cases the neutralization test was reported as showing antibodies present but in inconclusive amount. In five cases, the neutralization test result was not reported, and in six cases not requested.

At autopsy the virus was isolated from brain tissue by inoculation on a chick embryo in only one case. Unfortunately in the other cases the bodies were embalmed before permission for autopsy could be obtained.

It is obvious that serologic methods are by no means entirely accurate. It is also probable that there are encephalitides for which there are no complement fixation or neutralization tests because the organism has never been isolated.

Lenette and Longshore¹² studied 1,097 cases of infectious encephalitis in California between 1945 and 1950 and noted that in 47 per cent of the cases no known virus could be demonstrated. They also noted that most of the cases of Western equine encephalitis were in Kern, Fresno, San Joaquin and Tulare counties. In most of the cases outside those counties, in patients who had not recently been there, the results of serologic tests were negative. Finley and Hollister⁵ reported a similar observation.

Adams and Weinstein¹ expressed the opinion that the correct diagnosis of encephalitis requires the aid of laboratory methods. Unfortunately, results of laboratory studies in this disease are often more confusing than helpful.

EPIDEMIOLOGY AND PATHOGENESIS

Epidemics in Manitoba, Saskatchewan³ and North Dakota⁷ have been described. Cases have been reported in Illinois.¹¹ In California practically all the proven cases of Western equine encephalitis are from the San Joaquin Valley; it is generally recognized that cases of encephalitis originating in Los Angeles and the San Francisco Bay area are rarely proven serologically to be due to the Western equine

encephalitis virus.⁹ Practically all of the literature pertaining directly to Western equine encephalitis virus is found in CALIFORNIA MEDICINE. Most reports in other journals refer usually to encephalitis in general and are given generalizations about the encephalitides which do not ordinarily apply to each of the specific types.

The Tulare County Public Health Department⁴ reported 32 proven cases of Western equine encephalitis with six deaths in the epidemic of 1952, which corresponds with the present series of 20 cases with four deaths.

Because of the relationship of the disease vector to standing water and mosquitoes, knowledge of geographic features of this area is necessary for an understanding of the problem of health department officers in attempting to control the epidemic. The Central Valley of California is a completely land-locked valley approximately six hundred miles long and varying from fifty to a hundred miles in width. The mountains protect the area from all the lower nimbus clouds so that the weather is exceptionally mild, especially in the San Joaquin, which is the southern half of the valley. Rainfall is scant. The entire Valley is now a network of irrigation ditches. The principal product of the area is cotton and irrigating it entails the flooding of huge areas of land. Any dip in a field can hold water for some time. In warm weather, the *Culex tarsalis* and *Aedes aegypti* mosquito can develop from the egg to the adult stage in about four days. These factors combine to make an almost insurmountable problem for the local health departments and mosquito control districts.

According to Lenette and Longshore,¹² even though cases of encephalitis are reported throughout the year, laboratory-confirmed cases of encephalitis are found only in July, August and September, and the serologically negative cases are probably due to a yet undiscovered virus. Of the 20 cases in the present series, all but two occurred between the beginning of June and the end of September. One was in April and one in October. Not until after the first of July was the first case in the series diagnosed—at autopsy; and the last diagnosis was made on a patient admitted to Tulare County Hospital on the second of September with a complement fixation of significant titer. The first case reported in our series did not have complement fixation and neutralization tests were not done in the first case in the series, for encephalitis was not being considered at that time. It is worth noting that there were many other cases of possible and probable encephalitis during the height of the epidemic, but not so diagnosed.

Table 1 shows the incidence in this series by sex, race and age. The ratio of male to female patients

TABLE 1.—Incidence of Western Equine Encephalitis by Sex, Race and Age in 20 Cases

Sex		Race		Age							
M	F	White	Mexican	Under 1 yr.	1 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70
16	4	85%	15%	4	3	2	2	3	3	2	1

was 4:1. In other reported series¹² the ratio was 2:1. It has been suggested that the sex difference is owing to women's presumably lesser exposure to mosquito bites (since they are, in general, outdoors less); but in the area of this study, that may not be a very large factor, for a large proportion of the female population is employed in agricultural work in the open.

Three of the patients were of Mexican extraction, the remainder Caucasian. General hospital and clinic patients in the area are about evenly divided between the two races.

It is generally conceded that Western equine encephalitis is a disease of man and horse which occurs mainly in the Central Valley of California. It is less generally accepted that man and horse are only accidental hosts.⁵ The *Aedes aegypti* and *Culex tarsalis* mosquitoes are the vectors of this disease.^{2, 5, 6}

One of the main missing links in epidemiology is in the identification of the reservoir. Although some believe that the horse is the reservoir, the preponderance of evidence points to an avian reservoir. The domestic fowl has been proven to be a short-term reservoir, and the chicken mite has been suspected but not completely incriminated in epidemics, even though the virus has been found in the mites.¹⁰ The encephalitis virus is not passed from man to man, from horse to horse or from horse to man. In Kern County, California, and Yakima Valley, Washington, some wild birds have been proven to be hosts and their nests have been found to be infested with various species of arthropods that transmitted the Western equine virus.¹⁰ The life cycle of the virus is complex and not understood. It is felt that spinal fluid, blood, pharyngeal washings and feces are useless for isolating the virus under present methods, and only brain tissue from autopsy material has been found to yield the virus with any degree of regularity. However, the recently described technique of obtaining positive blood cultures for the poliomyelitis virus gives some encouragement.¹⁶

The virus has been isolated from mosquito pools frequently in early summer by the California State Department of Public Health's Encephalitis Study Unit.

It is generally accepted that the disease is transmitted from bird to man, or from bird to horse, by the mosquito vector. When the mosquito bites the

accidental host, the virus finds its way to the central nervous system—whether through the blood stream or by migration along the peripheral nerves is not known. The exact incubation period in man is very uncertain. How the virus finds its way to the respiratory tract is also uncertain, but it would seem more plausible that the vascular system carries the disease to the respiratory tract, rather than that there is a migration along the nerves. Recent work demonstrating a true viremia in poliomyelitis lends weight to this concept.¹⁶ The isolation of the lymphocytic choriomeningitis virus from the blood of patients during the acute disease also bolsters the theory.¹⁷

CLINICAL AND PATHOLOGIC FEATURES

In almost all cases in the series meningeal involvement was noted either clinically or at autopsy. Two of the patients complained of cough and two had positive pulmonary findings; five had symptoms compatible with involvement of the upper respiratory tract. X-ray films of the chest were done in 13 cases and in seven of them there was very definite evidence of pulmonary involvement. Radiographically there seemed to be a predilection for the right lower lobe, although other parts of the lower respiratory tract were also involved.

Autopsy was done in four cases. In one, only the head was examined. Bronchopneumonia was present in two of the other three cases, as was myocarditis. In one case a chromophobe adenoma of the pituitary (doubtless unrelated to the viral disease) was observed. Examination of the spinal cord was done in only one case, and edema only of the lateral and anterior horns was noted. The ganglia themselves appeared normal microscopically.

Examination of the autopsy summaries in these cases might lead one to conclude that the bronchial pneumonia noted in two cases was of a terminal nature. However, in light of the rather high incidence of respiratory signs and symptoms plus positive radiological evidence of pulmonary involvement in other cases in the series, it would seem more logical to assume that the pulmonary involvement noted at autopsy was due to a primary inflammatory response to the Western equine virus (Figure 1). It is noteworthy that the lymphocytic choriomeningitis virus was found in consolidated lung tissue in one fatal case of lymphocytic choriomeningitis.¹⁷

The autopsy summary of one case, in which the

lungs were normal, described an acute myocarditis with minute epicardial petechiae. The latter can be a manifestation of terminal hypoxia or of a possible terminal sepsis.¹⁵ In view of the known generalized nature of the disease, one might wonder—only in conjecture, of course—if the conditions noted could have been due to an acute viremia resulting from the Western equine virus.

As the author was not aware of the myocardial complications of some of the other encephalitides¹⁷ at the time the patients were being treated, routine electrocardiograms for evidence of myocarditis were not done.

SYMPTOMATOLOGY

The symptoms of Western equine encephalitis are primarily those of an inflammatory disease of the central nervous system. Since the lesions may be scattered throughout the nervous system¹ the symptoms can be quite varied. Finley and Hollister⁵ reported a uniform distribution of the disease in ages six months to 60 years, which corresponds with our data in the present series. They also noted that in adults there are more males affected than females, and in children the sexes were equal. Fever, headache, lethargy, drowsiness and stiff neck were the most common symptoms during the first three days of the illness. One-third of adults were reported to have tremor, while in children convulsions were quite common. These data also coincide with observations in the present series.

Kohut¹¹ reported a case in which the primary complaint was looseness of stools. Upon physical examination, drowsiness, plucking movements of the fingers, rigidity of the extremities, pharyngitis and diffuse abdominal tenderness were noted. Kohut said that a "flu-like" syndrome is present in all encephalitis. Although symptoms of involvement of the respiratory tract were present in a high proportion of the cases in the present series the symptomatology was more that of a central nervous system disease than of respiratory. Although rigidity and choreiform movements are reported to be common in other types of encephalitis, with the exception of nuchal rigidity, these conditions were rarely observed with Western equine encephalitis in the present series. A fairly sudden onset is common in children;² usually it is more insidious in adults.

History-taking was extremely difficult in this series, for many of the patients were brought in and left by the local police, by a helpful neighbor or by an employer and were unable to give a history. Many of the patients were migratory agricultural laborers, and many had no immediate family available. Follow-up observation also was almost impossible for the same reasons.

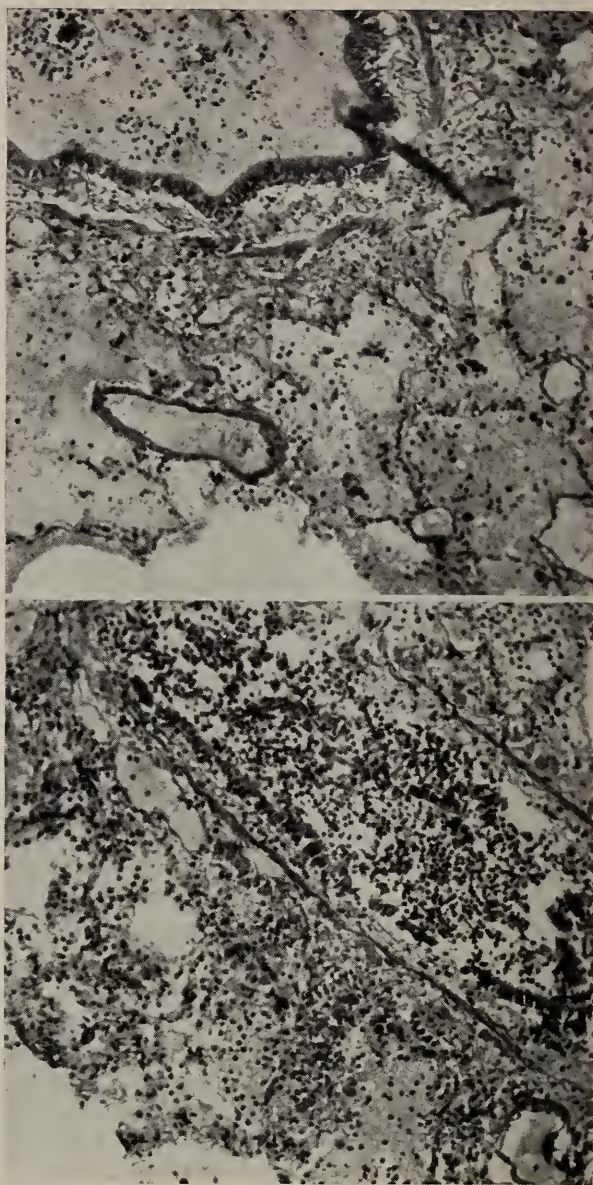


Figure 1.—Sections of lungs in which were noted bronchi filled with polymorphonuclear leukocytes and many alveoli filled with red blood cells and polymorphonuclear leukocytes. ($\times 450$).

The severe sequelae that are seen commonly in the other encephalitides are more the exception than the rule in Western equine encephalitis. There were none in the few cases in the present series in which follow-up was done.

Fulton and Burton,⁷ reporting on observation of 550 cases in Saskatchewan in 1941, noted that the symptoms were often confused with a "flu-like" syndrome, but that sequelae, which would occur some time after the acute infection, were proven by neutralization tests to be due to Western equine virus.

In the present series the main complaints (Table 2) were referable to the central nervous system

and all patients had complaints that were directly referable to the brain. This is very striking inasmuch as the numerical term *100 per cent* has such a small applicability to medical statistics—even in small series.

Fever was the most common complaint. Although a history of fever was elicited in only 60 per cent of the cases, all patients were found to have fever upon examination.

Headache was a very common symptom but varied quite a bit in character in cases in which a description of it could be elicited.

It is interesting that at least equivocal nuchal rigidity was noted in 85 per cent of the cases on physical examination. The complaints of cough and earache are of interest when correlated with the physical findings referable to the respiratory tract.

As 35 per cent of the patients had previously received antibiotics to which they had not responded, an extremely difficult problem in diagnosis was raised, for the clinical and spinal fluid determinations in these cases would fit the clinical picture of either a viral disease of the central nervous system or a healing purulent meningitis. To withhold antibiotics in a purulent meningitis would be unnecessarily risking the patient's life. On the other hand, continuing antibiotics in a case of Western equine encephalitis would not only have no effect on the disease but would further cloud the diagnosis by foreclosing the opportunity of carrying out a therapeutic trial. In looking back over the cases which were excluded from the present series because of treatment with antibiotics, it is felt that some lives were probably saved by continuing antibiotic therapy.

SIGNS

Physical signs (Table 3) were a much more reliable index of diagnosis in the present series than were case histories. In all cases there was elevation of temperature ranging from 99.8°F. to 106.0°F. on admission. In all cases there were physical signs of central nervous system disease. Seventeen patients had nuchal rigidity. In the three cases in which nuchal rigidity was not present the patients died. Of the four comatose patients, three were in coma on admittance and the other became comatose afterward. All died.

It is felt that the rather high incidence (35 per cent) of positive physical findings referable to the respiratory tract may be significant, especially in view of the high incidence of respiratory tract involvement in lymphocytic choriomeningitis (20 per cent), mumps meningitis (13 per cent), and leptospiral meningitis (33 per cent).¹⁷

TABLE 2.—Incidence of Various Complaints and Symptoms in 20 Cases of Western Equine Encephalitis

Complaint or Symptom	No. Cases	Per Cent
Lethargy	4	20
Coma	3	15
Confusion	7	35
Delirium		
Disorientation		
Dizziness	2	10
Irritability	2	10
Convulsions	5	25
Fever	12	60
Headache	9	45
Malaise	6	30
No response to previous antibiotics	7	35
Stiff neck	7	35
Vomiting	5	25
Coughing	3	15
Head trauma	2	10
Localized weakness	2	10
Earache	3	15

TABLE 3.—Incidence of Various Signs of Western Equine Encephalitis in 20 Cases

Highest temperature	106.0° F.	
Lowest temperature	99.8	
Average	102.8	
	No. Cases	Per Cent
Nuchal rigidity	17	85
Disorientation	5	25
Coma	4	20
Lethargy	2	10
Twitching	4	20
Choreiform movements }		
Shakiness }		
Babinski's sign	3	15
Absence of deep tendon reflexes....	4	20
Hyperactive deep tendon reflexes..	1	5
Localized weakness	1	5
Rigidity	1	5
Hamstring spasm	2	10
Pupils irregular	1	5
Bulging fontanelle	2*	10
Pulmonary findings	2	10
Pharyngitis, tonsillitis or otitis media	5	25

* Three of the patients in the series were infants.

That so few patients had reflex changes indicating spinal cord involvement indicates that this disease is not primarily myelitic.

After reviewing the data on suspected cases a number of times, the author has come to the conclusion that a positive diagnosis of Western equine encephalitis is almost impossible upon initial examination even at the height of an epidemic. It can also be concluded that a negative result of a complement fixation or neutralization test does not rule out encephalitis and diagnosis can best be made by reviewing the patient's chart months after he has left the hospital. In many typical cases results of complement fixation tests were negative and neutralization tests inconclusive. In many cases thought to be nonparalytic poliomyelitis, results of complement

fixation and neutralization tests were positive. A number of patients who were thought on admission to have typical cases of Western equine encephalitis, were later proved at autopsy to have granulomatous meningitis. Therefore, if the cases of granulomatous meningitis and the cases in which the patient had already received antibiotics be disregarded, it would seem that a diagnosis of encephalitis would be easy except for the fact that complement fixation and neutralization tests do not always distinguish what type of encephalitis is present.

LABORATORY, RADIOGRAPHIC AND CLINICAL OBSERVATIONS

Data on laboratory, roentgenographic and clinical observations were as follows:

Blood: The number of leukocytes varied from 6,250 to 16,500 per cu. mm.—in most instances in the range of 12,000. The proportion of segmented neutrophils varied from 31 per cent to 83 per cent, with a mean of 61 per cent; the proportion of stabs from 0 to 35 per cent with a mean of 10 per cent, and of monocytes from 0 to 13 per cent with a mean of 3 per cent.

Urine: Urinalysis was recorded in all but two of the 20 cases. In seven, definite abnormalities were noted. One patient had 4+ albumin with gross blood, one had 4+ albumin with a few leukocytes, two had positive reaction for albumin and both erythrocytes and leukocytes, two had leukocytes only and one had albumin only. It is noteworthy that not all patients with hyperpyrexia had abnormalities in the urine, nor was there any correlation of urinary abnormality with any of the other data in each case or with clinical progress. Three of the patients with urinary abnormalities were over the age of 50, and in them the condition may not be relatable to the disease; but three were under 30 years of age.

Spinal Fluid: Spinal fluid pressure was not determined in all cases, partly because of the difficulty in holding the disoriented patients still during the spinal tap and partly because there were not enough manometers available owing to the greatly increased need in an epidemic situation.

The spinal fluid cell content varied from 67 to 600 per cu. mm., with the exception of one case in which there were 9 cells per cu. mm. The mean cell count for all cases was 248. The proportion of polymorphonuclear cells varied from 5 per cent to 89 per cent, with a mean of 36 per cent. Early in the epidemic the polymorphonuclear cells predominated, but late in the epidemic the mononuclear cells predominated at the time of admittance to hospital. There appeared to be no correlation be-

tween the number of cells in the spinal fluid and the differential proportions; nor was there any correlation between these factors and the results of the complement fixation and neutralization tests for the Western equine virus.

The spinal fluid protein content in most cases was at the top of the normal range, although the variation was great, ranging from 15 mg. to 102 mg. per 100 cc. The spinal fluid sugar content, however, was slightly high in most cases, but the determinations were not done concurrently with blood sugar determinations.

There was growth of organisms on spinal fluid cultures in three cases, but a different organism in each case and not the Western equine virus in any of them. It was assumed that these were contaminants.

Serological tests for Western equine encephalitis: Seven patients, including the first four and the last in the series, had no serological tests for the Western equine virus. Three of the seven were patients who died. In seven cases antibody was absent or present in insignificant amount as shown by the complement fixation test, while in six cases there was a significant rise in titer on serial tests ten days apart. In four of the latter, however, results of neutralization tests, were inconclusive, and in only two cases was the result positive. All of the cases in which the result was negative or insignificant for complement fixing antibody also had neutralization tests that were interpreted by the California State Department of Public Health Laboratory as being inconclusive either due to small amounts of neutralizing factor or failure to show a significant rise on serial tests ten days apart. None of the neutralization tests were negative for Western equine infection.

It is obvious from the clinical features in the present series that encephalitis cannot be ruled out on the basis of negative or inconclusive results of blood tests. If the complement fixation and neutralization tests for the Western equine virus are as accurate as they purport to be, then it must be concluded that some of the cases in the present series were due to some as yet unknown virus or viruses which have not been isolated and for which no serological test has been developed. Negative results of complement fixation and neutralization tests, then, may rule out Western equine encephalitis, but do not rule out encephalitis due to other viruses. In all cases results of serological tests were negative for St. Louis and mumps encephalitis.

Radiological Findings: In a review of the literature no mention could be found of pulmonary involvement by the Western equine encephalitis virus, even though many of the encephalitides start out as a "flu-like" syndrome. In seven of the 13

cases in the present series in which x-ray films of the chest were made, positive radiological evidence of involvement of the lower respiratory tract was noted. No abnormality was observed in the other six. The physical findings and autopsy findings are consistent with the x-ray findings of streaks of increased density extending outward from the hilum and usually in the right lower lobe. It has been noted that abnormalities in the lungs have been observed roentgenographically in Japanese encephalitis,¹⁴ mumps meningitis, and leptospiral meningitis.¹⁷ Streaks of increased density in the upper left lung field were seen in x-ray films of one of the patients. In that case complement fixation was positive for the Western equine virus in the dilution of 1:128 and the result of a neutralization test was inconclusive.

Course of the Disease: Each patient was ill from one to five days—average about three days—before being hospitalized. The temperature became normal usually on the third hospital day, but as early as the first day and as late as the ninth. Cerebration, however, did not return to normal quite so early and the period of hospitalization necessary for the spinal fluid and cerebration to return to normal varied from five to 21 days, with a mean and median of 14 days. During this time the patient seemed to be oblivious to his surroundings. Often the patient would complain of stiff neck or even of being “sore all over” for seven to ten days after admission. Patients with the latter complaint were included in this series only if results of complement fixation or neutralization tests were positive or if a thorough examination of muscles had been done by a physical therapist and no evidence of localized weakness found.

Three of the four patients who died were comatose when admitted and the other became comatose

one day after admission. Two died the day of admission, one on the second hospital day, and one on the seventh day.

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REFERENCES

1. Adams, D., and Weinstock, L.: Clinical and pathological aspects of encephalitis, N.E.J. Med., 239:865-876, Dec. 2, 1948.
2. Alpers, B. J.: Clinical Neurology, F. A. Davis Co., Philadelphia, 1947.
3. Boyd, W.: Textbook of Pathology, 5th Edition, Lea and Febiger, Philadelphia, 905-906, 1947.
4. Brauner, E. J.: Tulare County Dept. Public Health Report for 1952.
5. Finley, K. H., and Hollister, A. C.: Western equine and St. Louis encephalomyelitis. The distribution and histologic nature of central nervous system lesions, Calif. Med., 74: 225-229, Apr. 1951.
6. Fothergill, L. D.: Equine Encephalitis Textbook of Medicine by Cecil, 7th Edition, Saunders, 1948.
7. Fulton, J. S., and Burton, A. N.: Human encephalitis caused by the virus of Western equine encephalomyelitis, Canad. J. Public Health, Toronto, 43:212, May 1952.
8. Hamilton, P. M.: Clinical aspects of the encephalitides, Calif. Med., 67:221-223, Oct. 1947.
9. Hammon, W. McD., and Reeves, W. C.: California encephalitis virus a newly described agent, Calif. Med., 77:303-309, Nov. 1952.
10. Hammon, W. McD.: The etiology and epidemiology of the virus group of encephalitides, Calif. Med., 67:217-220, Oct. 1942.
11. Kohut, H.: Encephalitis, Med. Cl. N. Amer., 31:83-93, Jan. 1947.
12. Lenette, E. H., and Longshore, W. A.: Western equine and St. Louis encephalitis in man, 1945-1950, Calif. Med., 75:189-195, Sept. 1951.
13. Stokes, J., Jr.: Textbook of Pediatrics by Mitchell and Nelson, 4th Edit., Saunders, 496-497, 1948.
14. Duisenberg, C. E.: Personal communication.
15. Amromin, G. D.: Personal communication.
16. Jungeblut, C. W., and Huenekens, E. J.: Studies on viremia in poliomyelitis, J. Ped., 44:20-31, Jan. 1954.
17. Adair, C. V., Gould, R. L., and Smadel, J. E.: Aseptic meningitis, a disease of diverse etiology, Ann. Int. Med., 39:675-705, Oct. 1953.



Leukoplakia of the Anus

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LEUKOPLAKIA is a precancerous dermatosis of mucous membranes analogous to senile keratosis of exposed skin surfaces. Leukoplakic lesions are seen most commonly in the oral cavity—in men more often than women at that site. They occur somewhat less frequently on the vulva. The bladder, kidney pelvis, ureters, larynx, esophagus, cervix and glans penis are occasionally involved. Extensions of primary vulvar leukoplakic lesions with involvement of the perineum and perianal skin have been described in the literature.^{1, 2} Primary leukoplakia on the anoderm of the anal canal is rarely reported.^{4, 15} The possibility of malignant transformation in untreated leukoplakia is well recognized. One-third of oral cancerous lesions originate in leukoplakia,^{11, 12} and about one-fourth of the cases of vulvar cancer are associated with leukoplakia.^{8, 14, 18} The importance of early recognition and appropriate treatment of anal leukoplakia is therefore being emphasized.

Certain confusions exist in the literature concerning leukoplakia, kraurosis and other dermatoses in the vulvar and perianal region.¹⁷ This is possibly owing to conflicting concepts as to etiology and pathology and to variations in terminology between dermatologists, gynecologists, pathologists and others who may deal with conditions in this location. This lack of clarity has led to improper treatment and disabling operations for some of the relatively benign dermatoses that occur in this region.¹⁷

Leukoplakia is basically a chronic inflammatory hypertrophy in which anaplasia and malignant dyskeratosis may develop and subsequently advance to an invasive squamous cell cancer.^{8, 11, 18} Kraurosis is a progressive sclerosing atrophy found mainly on the vulva of aged persons. It is now considered to be a separate entity and of a relatively benign nature.^{3, 13, 17} However, leukoplakia can be engrafted upon kraurosis.^{14, 16}

Anal leukoplakia is more likely to occur in the older age groups of either sex. Chronic irritation or trauma is probably a basic etiologic factor. Subjective symptoms are of no diagnostic significance. The clinical diagnosis of primary anal leukoplakia is indicated by single or multiple slightly raised,

• Anal leukoplakia is catalogued as precancerous because of the high incidence of malignant transformation found in lesions of this type.

Biopsy must be done to substantiate the clinical diagnosis of leukoplakia, to demonstrate the stage of the process, and to indicate the proper effective therapeutic approach.

Surgical excision is advisable in the early stage to avoid later carcinomatous changes and mutilating operations necessary for advanced malignant growth.

Three cases of leukoplakia involving the anoderm of the anal canal are presented herewith.

irregular, marginated, grayish-white keratinized patches in the anal canal. Tissue biopsy is necessary for confirmation. Initially, the process is slowly progressive hypertrophy of the epidermis with chronic inflammation in the subjacent dermis. The next clinical stage is evidenced by verrucous or ulcerative changes signifying probable malignant degeneration with anaplastic alterations in the epithelium in situ. If untreated, penetrating malignant growth may develop. Differential diagnoses to be considered include kraurosis extending perianally from primary vulvar involvement. Other innocuous dermatoses which sometimes occur about the anal region and which may at some stage resemble true leukoplakia in appearance, are lichen sclerosus et atrophicus, scleroderma, lichen planus and neurodermatitis with lichenification.^{7, 9, 17}

Treatment of anal leukoplakia depends on the stage of the lesion and should be initiated only after microscopic verification. The early or precancerous phase with small patches of leukoplakia will respond to local excision or electrosurgery. A more complete anoplastic procedure should be done for large patches, for verrucous and ulcerative changes, or when anaplastic changes are demonstrable microscopically.^{2, 4} The presence of an invasive squamous cell cancer will necessitate radical resection of the rectum, as well as an inguinal node dissection. Radiation therapy has proved ineffective and impractical in the treatment of leukoplakia.

PATHOLOGY

Grossly, the appearance of milky or pearly-white, slightly elevated, irregular plaques in the anus is suggestive of leukoplakia. The term *leukokeratosis* has been reserved for thickened, verrucous patches.

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Later erosive surface changes often indicate epithelial anaplasia and possibly deeper invasion.

Microscopically, the basic changes resemble those of senile keratosis of the exposed skin and are variable in degree.^{10, 11, 13} The early or precancerous stage is essentially one of epithelial hypertrophy with variable hyperkeratosis and pronounced acanthosis in the epidermal layer, together with chronic inflammatory changes in the subjacent corium. Parakeratosis may be prominent. The Malpighian layer shows hyperplastic widening and prolongation of the interpapillary rete pegs. The dermis has a lymphocytic infiltrate and fibroblastic proliferation in the papillary and subpapillary layers. Malignancy starts as a squamous cell cancer in situ with some of the features of Bowen's disease.⁶ Atypism and malignant dyskeratosis in the prickle cell layer are the changes which advance the lesion from the precancerous dermatoses. Plasma cells are usually present in the dermis when anaplasia is found in the epidermal layer. The final stage is an invading cancer involving the dermis and deeper tissues.

Kraurosis, lichen sclerosus et atrophicus or scleroderma can occur perianally and may bear a superficial resemblance to leukoplakia because of varying hyperkeratotic surface changes.^{7, 9, 17} Histologically, in these lesions the prickle cell layer shows pronounced atrophy, and there is edema as well as homogenization of collagen in the upper corium. Lichen planus can sometimes be confusing, but in this condition there is edema in the dermis with a band-like lymphocytic infiltrate hugging the basal cell layer, and other corroborating skin lesions may be found elsewhere on the body.¹⁰ Neurodermatitis with secondary lichenification usually presents no problem in differential diagnosis.

In the three cases of anal leukoplakia presented herein, the lesions were in the precancerous phase and involved the anal canal proper.

REPORTS OF CASES

CASE 1. A 50-year-old white truck driver was first observed in April, 1950. During the preceding year, he had had increasing anal bleeding, prolapse and soiling. He said that he had treated himself for hemorrhoids a year before by inserting plumber's oakum—jute packing impregnated with creosote—into the anorectum. Severe pain, pronounced inflammatory reaction and progressive anorectal symptoms ensued.

Upon examination the anal orifice was observed to be atonic, with large hemorrhoids and mucosal prolapse. There was a transverse area of induration and thickening in the right posterior anal quadrant near the anorectal line. The anoderm at this site was pearly-gray, raised and extended into the adjacent rectal mucosa.

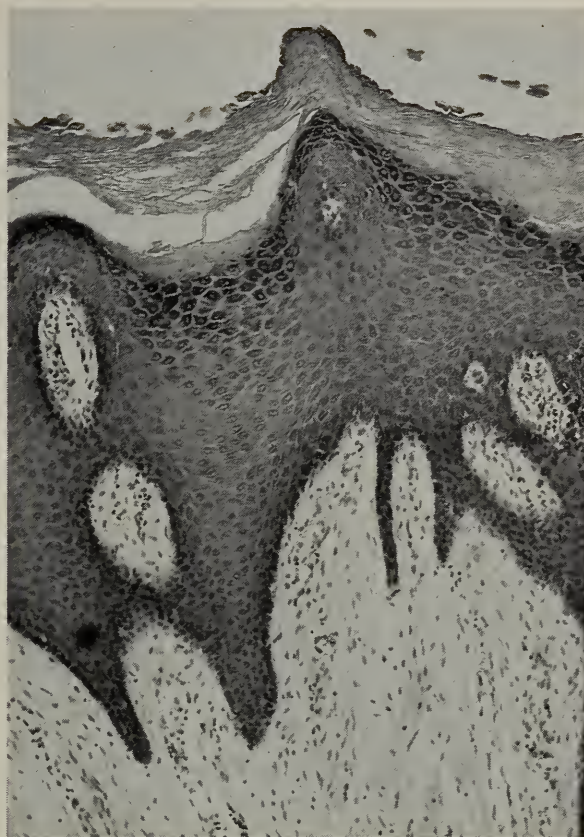


Figure 1.—Section of anoderm showing hyperkeratosis and prominent acanthosis with elongated rete pegs. There is an orderly hyperplasia of the Malpighian cells and a round cell infiltrate with scarring in the papillary layer of the dermis. ($\times 100$).

Hemorrhoidectomy, incorporating the keratinized areas, was carried out. Subsequent recurrences of thickened whitish plaques in the upper anal canal did not respond well to electrodesiccation. Wider excision of the recurrent leukoplakic areas was done in December, 1952, and after that the patient had no further difficulty. The pathologic diagnosis was anal leukoplakia (Figure 1).

Microscopically, there was pronounced cornification of the anoderm. Acanthosis was prominent, but the rete cells were orderly and the basal layer was well defined. Scarring and a mild degree of round cell infiltration were present in the papillary layer of the dermis.

CASE 2. A 63-year-old white lumberman was referred by a physician to the outpatient department of the University of California Hospital in June, 1952, because of severe anal leukoplakia. A biopsy report indicated "beginning malignant changes." According to the history, anal pain and nocturnal itching of increasing severity had been present for over four years. During the preceding two years, there had been bright red blood in the stools, which were the caliber of a pencil and passed with difficulty. In 1942 the patient had had a hemorrhoidectomy. Two years before he was examined in the

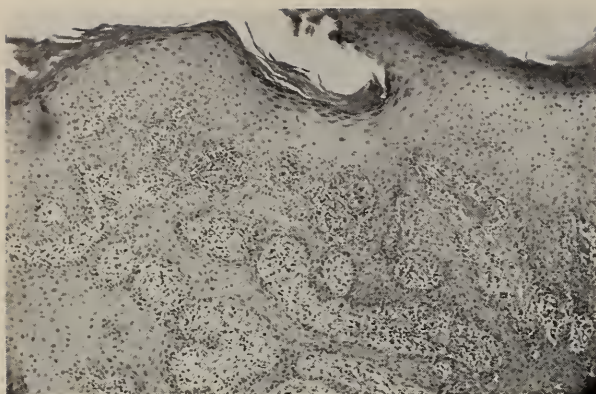


Figure 2.—Section of anal biopsy showing surface keratinization and pronounced acanthosis with deep anastomosing rete pegs. There is a profuse chronic inflammatory reaction in the papillary dermal layer. ($\times 65$).

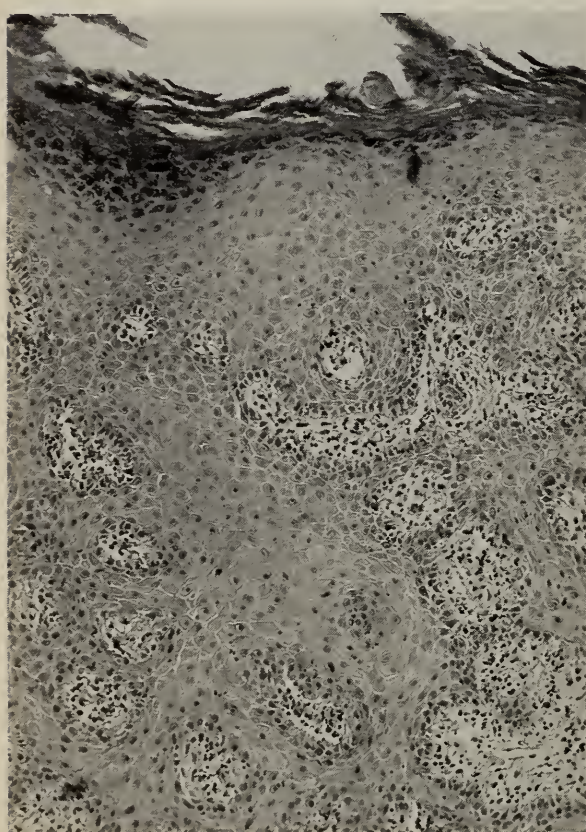


Figure 3.—Section of anal biopsy showing hyperkeratosis of the surface anoderm. The acanthotic prickly cell layer has an orderly hypertrophy and a uniform basal cell layer. No anaplasia is seen. The subjacent dermis shows a round cell infiltrate and plasma cells. ($\times 100$).

outpatient clinic he had had injection treatments for hemorrhoids, which aggravated the condition.

Upon examination the perianal skin was observed to be macerated, excoriated and thickened, suggestive of leukoplakia. Digital examination of the anus, which was stenotic and deformed, was very painful. The canal had marked leukoplakic changes and a

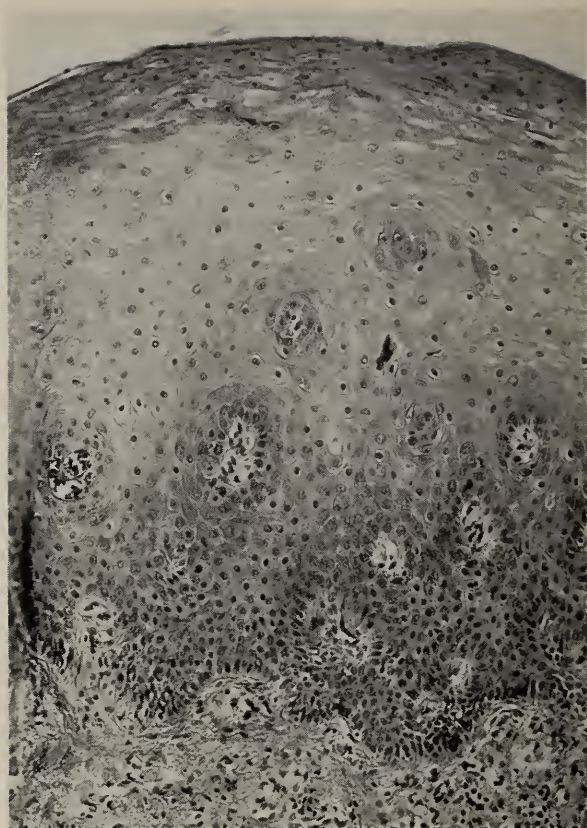


Figure 4.—Photomicrograph of anal biopsy showing parakeratosis in the corneal layer, an orderly hyperplasia of the Malpighian cells, a well defined basal layer and a round cell infiltration with fibrosis in the papillary layer of the corium. ($\times 150$).

chronic fissure posteriorly. Pathologic diagnosis after biopsy was leukoplakia of the anus (see Figures 2 and 3). Radiologists advised against roentgen therapy, and the patient was referred to the San Francisco Hospital for care. He returned home, however, and an abdominoperineal resection with colostomy was subsequently done elsewhere. The operative specimen showed anal leukoplakia but no anaplasia.

Microscopic study of the biopsy specimen taken at the time of examination in the University of California clinic showed thickened surface keratinization and pronounced acanthosis with deep anastomosing rete pegs. The hyperplastic prickly cells were orderly and the basal layer appeared intact. The dermis showed profuse chronic inflammation, with lymphocytes, plasma cells and large mononuclear cells in the papillary layer.

CASE 3. A 74-year-old white widow was referred to the outpatient department of the University of California Hospital in October, 1953, because of dysphagia due to esophageal diverticula. Upon routine medical examination it was noted that the anal canal was indurated, fibrotic and nodular, barely admitting the tip of the index finger. The patient had had a vaginal plastic operation and a clamp and cautery hemorrhoidectomy in 1941. Except for

the passage of small caliber stools, there were no complaints referable to the anorectum.

Examination showed a ring of large fibrous external tags and an everted anal canal with protruding fibrous polyps. Verrucous thickening and leukoplakic changes involved the stenotic upper anal canal and there was some extension to the rectum. Pathologic diagnosis of the biopsy specimen was leukoplakia of the anal mucosa (see Figure 4).

The patient refused to have surgical treatment because of her age; but continued observation during 1955 showed no clinical or pathologic advancement of the leukoplakic anal lesion.

Upon microscopic study of the biopsy specimen, surface keratinization and parakeratosis in the anoderm were noted. The acanthotic Malpighian layer had an orderly hypertrophy and an intact basal layer. The subjacent dermis had a round cell infiltrate and fibrosis.

DISCUSSION

In the three cases presented, the leukoplakia was in the precancerous phase and anaplastic or invasive changes had not yet occurred. The lesions developed on the so-called "mucosa" or anoderm of the anal canal, with some extension to the adjacent rectal mucosa. Extension to the perianal skin was noted in one case. Gorsch⁵ said that the lining of the anal canal is a transitional or modified type of squamous epithelium, lacking the cornification, hair follicles and sebaceous glands of the perianal skin. Epithelium of this type has poor resistance to irritative trauma.

The cause of leukoplakia is still a controversial subject.^{8, 15, 17} Syphilis was indicated by earlier investigators as a prominent factor in oral lesions. Deficiencies of vitamin A, hydrochloric acid, vitamin C and estrogens have been mentioned as causative factors in vulvar leukoplakia. Excessive excretion of irritating organic urinary acids has also been considered.¹⁴ The author believes that prolonged local irritation from any cause, acting on a deficient, aging epithelium, is fundamental. One of the patients reported upon herein gave a history of using a possible carcinogenic agent in self-treatment of hemorrhoids. Another patient mentioned difficulty following a clamp and cautery hemorrhoidectomy.

The patient who had a recurrence after local excision and electrodesiccation did well after a

second wider removal of the lesion. Verrucous, indurative or erosive changes suggest in situ or deeper malignant transformations and must be viewed with suspicion. A preliminary biopsy correctly interpreted will serve as a guide for a proper therapeutic approach. The patient in whom an abdominoperineal resection was performed (Case 2) would probably have done well with a less drastic anoplastic procedure. Study of representative biopsy sections in that case failed to show any anaplastic or invasive changes.

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REFERENCES

1. Bacon, H. E.: *Anus, Rectum, Sigmoid Colon*. Ed. 3, Philadelphia, J. B. Lippincott Co., 1949, Vol. 2, p. 581.
2. Bacon, H. E., and Wolfe, F. D.: *Kraurosis ani*, *Tr. Am. Proct. Soc.*, 42:160, 1941.
3. Buxton, C. L.: The treatment of leukoplakia and kraurosis vulvae, *Geriatrics*, 5:142, 1950.
4. David, V. C.: Leukoplakia of the rectum, *Arch. Path.* 26:151, 1938.
5. Gorsch, R. V.: *Proctologic Anatomy*. Ed. 2, Baltimore, Williams and Wilkins Co., 1955, p. 31.
6. Grodsky, L.: Bowen's disease of the anal region, *Am. J. Surg.*, 88:710, 1954.
7. Hunt, E.: Leucoplakia vulvae, kraurosis vulvae and lichen planus of the vulva, *Brit. J. Dermat.*, 48:53, 1936.
8. Langley, I. I., Hertig, A. T., and Smith, G. V.: Relation of leukoplakic vulvitis to squamous carcinoma of the vulva, *Am. J. Obst. and Gynec.*, 62:167, 1951.
9. Laymon, C. W.: Lichen sclerosus et atrophicus and related disorders, *Arch. Dermat. and Syph.*, 64:620, 1951.
10. Lever, W. F.: *Histopathology of the Skin*. Philadelphia, J. B. Lippincott Co., 1949, p. 281.
11. MacKee, G. M., and Cipollaro, A. C.: *Cutaneous Cancer and Precancer*. New York, The American Journal of Cancer, 1937, p. 35.
12. McCarthy, F. P.: Etiology, pathology and treatment of leukoplakia buccalis, *Arch. Dermat. and Syph.*, 34:612, 1936.
13. McCarthy, L.: *Histopathology of Skin Diseases*. St. Louis, C. V. Mosby Co., 1931, p. 452.
14. Miller, N. F., Riley, G. M., and Stanley, M.: Leukoplakia of the vulva, *Am. J. Obst. and Gynec.*, 64:768, 1952.
15. Moehling, R. C.: Leukoplakia of oral mucous membrane, tongue and anal region, *J. Michigan M. S.*, 52:282, 1953.
16. Montgomery, H., Counseller, V. S., and Craig, W. M.: Kraurosis, leukoplakia and pruritus vulvae, *Arch. Dermat. and Syph.*, 30:80, 1934.
17. Schoch, Jr., E. P., and McCuiston, C. H.: Diagnostic and therapeutic errors in certain dermatoses of the vulva, *J.A.M.A.*, 157:1102, 1955.
18. Taussig, F. J.: Cancer of the vulva: analysis of 155 cases, *Am. J. Obst., and Gynec.*, 40:764, 1940.

Retrolental Fibroplasia

A Reduction in Incidence Following a Decrease in Use of Oxygen Therapy for Premature Infants

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THE EXACT INCIDENCE of retrolental fibroplasia is unknown. It is known to vary in incidence from city to city, and between hospitals in a given city. Therefore, data on the incidence of this condition from year to year in individual hospitals is helpful in the evaluation of preventive measures. The only recent report of the incidence of retrolental fibroplasia in a California hospital is one by Henry,⁵ who reviewed the incidence at the University of California Hospital in San Francisco for a three and a half year period up to the spring of 1954.

MATERIALS AND RESULTS

At the Harbor General Hospital, Los Angeles, approximately 2,000 babies are delivered annually and each year about 150 premature infants with a weight of less than 2,500 gm. at birth are cared for. These infants are cared for in a special premature unit containing seven "Isolette" incubators and four Armstrong old type incubators. In general, all babies under 1,800 gm. are placed in an "Isolette" incubator on admission. Since January 1952, one of the authors has examined the eyes of every premature infant in the nursery prior to discharge and has continued to observe in the outpatient department any in whom retrolental fibroplasia developed.

In the three years from January 1952 to January 1955, there were 453 premature babies delivered at Harbor General Hospital and the overall mortality rate was 20.9 per cent. Retrolental fibroplasia devel-

- The incidence of retrolental fibroplasia in a general hospital for the period January 1952 to January 1955 was reviewed and it was noted that a sharp decrease in incidence was associated with a reduction in the intensity of oxygen therapy.
- Retrolental fibroplasia developed most frequently in the smallest premature infants and no cases occurred in infants weighing more than 2,000 gm. at birth.

oped in 14 (3.9 per cent) of the 358 surviving infants with birth weight of 2,500 gm. or less.

The incidence of retrolental fibroplasia was further determined for each of various weight groups during this three-year period (Table 1). There were no cases in the group from 2,000 to 2,500 gm., an incidence of 6.6 per cent among survivors in the 1,500-2,000 gm. group, of 14.7 per cent in the 1,000-1,500 gm. group, and of 75 per cent in the less than 1,000 gm. group.

The data was further analyzed to determine the incidence for each birth weight group for each of the three years (Table 2). In the year 1952 there were seven cases of retrolental fibroplasia, in 1953 five cases, in 1954 one case and none during the first half of 1955. The birth weight of the infant and the extent of the changes in the eyes in each case are shown in Table 3.

DISCUSSION

Soon after January 1952 when the program of examining all premature infants in the nursery for retrolental fibroplasia was begun, several cases were

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Submitted September 17, 1955.

TABLE 1.—Data on Retrolental Fibroplasia in Premature Infants, January 1952 to January 1954, at Harbor General Hospital

Birth Weight (in gm.)	Births	Survivors	Mortality Rate (Per Cent)	No. with RLF	Survivors with RLF (Per Cent)
Under 1,000	55	4	92.7	3	75.0
1,000 to 1,500	56	34	39.2	5	14.7
1,500 to 2,000	105	91	13.3	6	6.6
2,000 to 2,500	237	229	3.4	0	0
Totals	453	358	20.9	14	3.9

RLF=Retrolental fibroplasia.

TABLE 2.—Incidence of Retrolental Fibroplasia in Relation to Birth Weight in Each of Three Years

Birth Weight	Births	Survivors	Mortality Rate (Per Cent)	No. with RLF	Survivors with RLF (Per Cent)
Under 1,000 gm.:					
1952	17	1	94.1	0	0
1953	18	2	88.8	2	100
1954	20	1	95.0	1	100
1,000 to 1,500 gm.:					
1952	19	13	31.6	3	23
1953	23	12	47.8	2	16.6
1954	14	9	35.7	0	0
1,500 to 2,000 gm.:					
1952	28	22	21.4	4	18.1
1953	39	32	18.0	2	6.2
1954	38	37	2.6	0	0
2,000 to 2,500 gm.:					
1952	86	84	2.3	0	0
1953	66	64	3.0	0	0
1954	85	81	4.7	0	0

RLF=Retrolental fibroplasia.

TABLE 3.—Weight at Birth and Extent of Ocular Changes in 14 Cases of Retrolental Fibroplasia

Cases	Race and Sex	Date of Birth	Birth Weight (in gm.)	Ultimate Eye Findings*	
1. Mexican	F	January 7, 1952	1,588	Cicatricial phase	Grade IV—Right eye Grade V—Left eye
2. White	M	February 22, 1952	1,673	Active phase	Stage I—Both eyes
3. White	M	March 10, 1952	1,503	Cicatricial phase	Grade V—Both eyes
4. White	F	March 23, 1952	1,353	Cicatricial phase	Grade V—Right eye Grade IV—Left eye
5. White	F	May 16, 1952	1,304	Cicatricial phase	Grade III—Right eye Grade IV—Left eye
6. White	M	October 13, 1952	1,531	Cicatricial phase	Normal —Right eye Grade III—Left eye
7. White	M	November 29, 1952	1,446	Cicatricial phase	Grade V—Both eyes
8. Mexican	M	January 6, 1953	1,644	Active phase	Stage II—Both eyes
9. White	F	January 28, 1953	1,000	Cicatricial phase	Normal —Right eye Grade IV—Left eye
10. White	F	February 22, 1953	964	Active phase	Stage I—Both eyes
11. White	M	April 3, 1953	1,389	Active phase	Stage I—Both eyes Normal —Both eyes
12. White	F	September 7, 1953	1,673	Active phase	Stage I—Both eyes
13. White	F	October 27, 1953	1,361	Cicatricial phase	Grade IV—Right eye Grade V—Left eye
14. White	F	February 22, 1954	964	Cicatricial phase	Grade V—Both eyes

* The classifications used are those recommended by the National Society for Prevention of Blindness (Am. J. Ophthalmology, 36:1333, Oct. 1953). The active phase is rated as Stages I through V, and the cicatricial phase as Grades I through V.

observed. This increased the concern of members of the staff with the cause and ways to prevent this condition.

In December, 1951, Szweczyk¹² in a preliminary report suggested misuse of oxygen and sudden episodes of anoxia or reduction of oxygen supply as the cause of retrolental fibroplasia. This was followed by a more extensive article in March, 1952.¹³ At the same time Ingalls⁷ presented evidence of the production of eye lesions in animals by subjecting the pregnant mothers to anoxia, and Ryan¹¹ in Australia related an increased incidence of retrolental fibroplasia in one hospital to the acquisition of incubators that maintained higher oxygen concentrations.

With this information implicating oxygen as an etiological factor either by overuse or misuse, a reevaluation of the care of premature infants at Harbor General Hospital was begun. "Isolette" incubators were being used for all infants under 2,000 gm. and it was general procedure to give oxygen routinely in amounts of six liters per minute and to continue this for several weeks, particularly for the smaller infants. During the year 1952, attempt was made to use somewhat less oxygen and to remove the infants from the high concentrations of oxygen slowly, as was suggested by Szweczyk.¹³ However, oxygen still was used in amounts of four liters per minute for several weeks. There was some difficulty in abandoning the concept of unrestricted

use of oxygen. There was no pronounced decrease in the incidence of retrolental fibroplasia during the remainder of that year or the next. However, gradually through 1953 and 1954 less and less oxygen was used and for shorter periods. Meanwhile, beginning in July, 1953, all babies under 1,800 gm. were given a special low electrolyte formula* as recommended by Hepner and Krause.⁶ Routine use of the formula was discontinued in September, 1954. During this interval retrolental fibroplasia developed in three infants receiving the formula.

By early 1954, in light of continuing reports seeming to indict excessive use of oxygen,^{1, 9, 10} the amount of oxygen used for premature infants had been reduced to about two liters per minute and it was given for shorter periods. In the late spring of 1954, the use of oxygen was decreased to minimal amounts, and then only for obvious indications of respiratory distress and never longer than a day or two at a time. In June, 1954, use of an oxygen analyzer to determine the oxygen content of the incubators was begun and oxygen concentration was maintained at less than 40 per cent, as was suggested by Lanman,⁸ Gordon⁴ and Ashton.² At the time of this report there had been no cases of retrolental fibroplasia in 16 months, the most recent case having developed in February, 1954.

Even the tiniest babies seem to do as well with the minimal amounts of oxygen as they did previously when high concentrations were used for long periods. This agrees with observations made by Engle and Levine³ in a thorough study of the same subject.

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*Supplied by Mead Johnson & Co. as Formula 411.

REFERENCES

1. Ashton, N., Ward, B., and Serpell, G.: Role of oxygen in the genesis of retrolental fibroplasia, *Brit. J. Ophth.*, 37:513, Sept. 1953.
2. Ashton, N., Ward, B., and Serpell, G.: Effect of oxygen on developing retinal vessels with particular reference to the problem of retrolental fibroplasia, *Brit. J. Ophth.*, 38:397, July 1954.
3. Engle, M., and Levine, S.: Response of small premature infants to restriction of supplementary oxygen, *J.A.M.A.*, *Dis. Child.*, 89:316, March 1955.
4. Gordon, H., Lubchenco, L., and Hix, I.: Observations on the etiology of retrolental fibroplasia, *Bull. J. Hopkins Hosp.*, 94:34, Jan. 1954.
5. Henry, M.: Recent advances in retrolental fibroplasia, *Calif. Med.*, 81:272, Oct. 1954.
6. Hepner, W., and Krause, A.: Retrolental fibroplasia, *clinical observations*, *Ped.*, 10:433, Oct. 1952.
7. Ingalls, T., Tedesche, C., and Hepburn, M.: Congenital malformations of the eye induced in mice by maternal anoxia, *Am. J. Ophth.*, 35:311, March 1952.
8. Lanman, J., Guy, L., and Davies, J.: Retrolental fibroplasia and oxygen therapy, *J.A.M.A.*, 155:223, May 1954.
9. Patz, A., Hoeck, L., and De La Cruz, E.: Studies on the effect of high oxygen administration in retrolental fibroplasia. I. Nursery observations, *Am. J. Ophth.*, 35:1248, Sept. 1952.
10. Patz, A., Eastman, A., Higginbotham, D., and Kleh, T.: Oxygen studies in retrolental fibroplasia. II. Production of microscopic changes of retrolental fibroplasia in experimental animals, *Am. J. Ophth.*, 36:1511, Nov. 1953.
11. Ryan, H.: Retrolental fibroplasia, a clinico-pathologic study, *Am. J. Ophth.*, 35:329, March 1952.
12. Szewczyk, T.: Retrolental fibroplasia, etiology and prophylaxis: A preliminary report, *Am. J. Ophth.*, 34:1649, Dec. 1951.
13. Szewczyk, T.: Retrolental fibroplasia, etiology and prophylaxis, *Am. J. Ophth.*, 35:301, March 1952.



CASE REPORTS

Erythema Multiforme Exudativum; Treatment with Corticotropin

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TREATMENT of erythema multiforme exudativum has been unsatisfactory until recently. Sulfa drugs, penicillin and newer antibiotics did not have therapeutic effect. Several reports emphasized dramatic improvement in the course of the disease following institution of cortisone or corticotropin (ACTH).^{1, 3, 5, 9, 10} This effect upon the disease has been advanced to support a theory that hypersensitivity is a basic factor in the syndrome.

Erythema multiforme exudativum has been described in the literature under many names (Stevens-Johnson syndrome, eruptive fever, Hebra's erythema multiforme exudativum, Behcet's syndrome, ectodermosis erosiva pluriorificialis, ocular-mucous membrane syndrome). Several excellent discussions of the similarities among these syndromes^{2, 4, 6, 7, 8} have been published. Most observers now believe all to have a mutual identity. The various aspects of the clinical picture have been well described—the involvement of the skin, mucous membranes of the oral cavity, conjunctivae, genital organs and other less frequently involved sites. The course is generally self-limited, and rarely is the disease fatal. Sometimes it recurs.

Two patients were diagnosed as having erythema multiforme exudativum within the same week at the United States Army Hospital, Camp Polk, Louisiana. These were the only patients so diagnosed at that hospital during at least a year and a half. Both were treated with corticotropin (ACTH), 25 mg. daily in a slow intravenous drip of 5 per cent glucose in distilled water.

REPORT OF CASES

CASE 1. The patient, a 23-year-old married Caucasian male was admitted to the hospital February 20, 1953. He had had a runny nose, cough and fever for two days. On the day of admission he had chills and higher fever than on the previous day.

Upon examination at the time of admittance the oral temperature was 103° F. Also noted were nasal congestion, redness in the throat and coarse wheezes

over both lung fields. The initial diagnosis was influenza (this was during an epidemic of influenza). Treatment was symptomatic.

The hemoglobin content of the blood was 15.2 gm. per 100 cc. Leukocytes numbered 11,700 per cu. mm.—with 82 per cent neutrophils and 18 per cent lymphocytes. The urine was normal. No abnormality was seen in an x-ray film of the chest.

The patient continued to have fever varying from 99° to 103.6° F. daily. The cough also continued and became productive, and the patient complained of generalized aches and sore throat. On the fourth hospital day, acute conjunctivitis and stomatitis developed, with vesicular and bullous lesions on the lips, mouth, pharynx and tongue. Three days later a few dark, erythematous iris-shaped lesions developed on the right arm and the back. The patient had pain on swallowing and was able to take only liquids.

On this day the diagnosis of erythema multiforme exudativum was definitely established. Administration of corticotropin was started—25 mg. daily in an intravenous drip of 5 per cent glucose in distilled water over an eight-hour period. By the next day the patient felt better and no longer appeared "toxic." After the second day of treatment no new skin lesions appeared and the conjunctivitis and stomatitis started to improve. After five days of treatment the skin lesions had faded, and the eyes and mouth were much improved. The patient was eating a soft diet and wanted to leave the hospital. Treatment was stopped and a week later the patient was released from the hospital as recovered.

When the diagnosis was suspected in this patient, he was questioned about any similar previous episodes. He said that in December of 1947 he had had a skin rash with red circles over the legs and trunk. This was accompanied by severe conjunctivitis and ulcers in the mouth and pharynx. The illness lasted approximately three weeks. No definite diagnosis was made. The treatment consisted of injections of some type. The patient said he had lost about 15 pounds during the illness. About two months later, early in 1948, all the previous signs and symptoms recurred but the oral lesions were more severe and lasted longer. This time, the illness lasted about 25 days and the decrease in body weight was between 15 and 20 pounds. A third episode occurred in June of 1948 and was of the same duration and severity as the first attack. There was no specific diagnosis

Submitted August 29, 1955.

or any specific treatment given. Some time before the first episode the patient had received a "sulfa drug" for treatment of upper respiratory tract infection. However, he had received no sulfa drug just before or during any of the subsequent illnesses.

CASE 2. A 20-year-old single Caucasian male was admitted to the hospital on February 23, 1953. He had had a cold of gradually increasing severity for three weeks. For two days prior to admission he had had headaches, sore throat, a dry nonproductive cough, and chills and fever.

At the time of admittance the oral temperature was 101.2° F. and the pharynx hyperemic. There were no abnormal sounds in the lungs. The tentative diagnosis was pharyngitis and bronchitis.

The hemoglobin content of the blood was 13.9 gm. per 100 cc. Leukocytes numbered 8,100 per cu. mm., with 78 per cent neutrophils, 21 per cent lymphocytes and 1 per cent eosinophils. The urine was normal. No abnormalities were noted in an x-ray film of the chest. Occasional colonies of beta-hemolytic *Streptococci* grew on cultures of material from the throat.

Penicillin therapy was started upon admission and was continued for eight days. On the eighth hospital day, pronounced stomatitis, conjunctivitis, balanitis, and lesions of erythema multiforme on both arms were noted. The diagnosis was changed to erythema multiforme exudativum. Administration of corticotropin was started, 25 mg. being given daily in a slow intravenous infusion of 1,000 cc. of 5 per cent glucose in distilled water. The next day the patient was afebrile and felt much better. By the fourth day of corticotropin therapy he was able to eat, and the conjunctivitis and stomatitis were much improved. The hormone was continued for five days. Two weeks from the beginning of therapy with corticotropin the patient was essentially well and was allowed out of bed. He was discharged from the hospital four days later.

The patient was carefully questioned regarding previous similar episodes. He had had intra-oral soreness thrice previously. He recalled an episode at eight years of age but could give no details. Sores

in the mouth had occurred again when he was 15 years of age and at age 17 he had had large sores in the mouth, lesions about the eyes and the glans penis, and painful urination. The patient could not recall whether or not he had taken any drugs before or during those episodes.

DISCUSSION

It was the definite opinion of the two patients who were treated and of the attending physicians that there was a pronounced change in the course of the illness in both instances within 24 hours after the initial dose of corticotropin. Not until many more patients have been treated with this hormone can there be any conclusion as to whether or not, in the cases thus far reported, administration was merely coincidental with spontaneous remission.

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REFERENCES

1. Agostas, W. N., Reeves, N., Shanks, E. D., Jr., and Sydenstricker, V. P.: Erythema multiforme exudativum (Stevens-Johnson syndrome), *New Eng. J. Med.*, 246:217-219, Feb. 7, 1952.
2. Billow, B. W., and Lowen, H. J.: Erythema multiforme exudativum, *Arch. Int. Med.*, 90:310-319, Sept. 1952.
3. Bleier, A., and Schwartz, E.: Cortisone in Stevens-Johnson syndrome, *Am. J. Ophth.*, 34:618-619, April 1951.
4. Editorial: Erythema multiforme exudativum, *J.A.M.A.*, 146:1424, Aug. 11, 1951.
5. Fishman, H. C.: Topical use of cortisone in erythema multiforme bullosum, *Calif. Med.*, 74:392, May 1951.
6. Robinson, H. M., Jr.: The ocular-mucous membrane syndrome, *Med. Cl. No. Amer.*, 35:315-331, March 1951.
7. Robinson, H. M., Jr., and McCrumb, F. R., Jr.: Comparative analysis of the mucocutaneous-ocular syndromes, *Arch. Derm and Syph.*, 61:539-560, April 1950.
8. Soll, S. N.: Eruptive fever with involvement of the respiratory tract, conjunctivitis, stomatitis and balanitis, *Arch. Int. Med.*, 79:475-500, May 1947.
9. Wammock, V. S., Biederman, A. A., and Jordan, R. S.: Erythema multiforme exudativum treated with ACTH, *J.A.M.A.*, 147:637-639, Oct. 13, 1951.
10. Willis, W. D., and Barger, H. M.: Erythema multiforme exudativum; report of a case treated with cortisone, *Med. Bull. U. S. Army, Europe*, 9:160-163, 1952.



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EDITORIAL

C.M.A. Centennial Session

ON MAY 2 the California Medical Association completed its Centennial Session, marking the completion of one hundred years of existence and its eighty-fifth annual meeting. By all standards this was an outstanding gathering.

Scientifically, the quality of papers was extremely high and the motion pictures, colored television and scientific exhibits set new standards of excellence. Many of the papers read at the general and section meetings will appear in CALIFORNIA MEDICINE during the coming year.

The session heard a telegram directed to President Sidney J. Shipman by President Eisenhower, complimenting the C.M.A. on a century of service to the people of California. In addition, the House of Delegates greeted Governor Goodwin J. Knight and heard his direct compliments on the quality and distribution of medical care in the state and a reiteration of his adamant opposition to any legislation for socializing medicine.

On the business side, the House of Delegates staged two long sessions and dealt with three dozen resolutions which covered fields as far apart as postgraduate training and narcotic addiction. A few of the topics considered are summarized here and a complete report on the activities of the House will appear in a later issue.

One controversial item concerned the practice of private medicine by faculty members of medical schools in facilities provided by the taxpayers. This question has been under discussion in the past and, by action of the House of Delegates, has now been handed over to the C.M.A. Council for further study and report.

Another proposal which evoked debate on the floor was the suggestion that clinics or other centers be established for the administration of narcotics, at

nominal or no cost, to known addicts; as a corollary, the penalties for illicit sale of narcotics would be sharply increased. Discussion on this topic brought forth diametrically opposed points of view and the House of Delegates wound up by referring this subject also to the Council for further investigation.

Adopted without opposition was an amendment to the C.M.A. constitution which establishes a non-profit corporation to administer the Association's benevolence program. The presence of such a corporation is expected to permit the raising of funds for this worthy endeavor without the necessity of paying out federal taxes.

Another resolution urged the adoption of strong and definite standards for advertising acceptance in county medical society bulletins. Under the terms of a series of resolutions covering hospital standards, the Joint Commission on Accreditation of Hospitals will be asked to give additional study to such matters as attendance at hospital staff meetings, attendance at tissue committee meetings, handling of postgraduate training in hospitals and other items which are now under consideration by a special committee of the American Medical Association.

A renewed effort to bring the industrial fee schedule more nearly in line with accepted fee practices was approved in another resolution which asked that new representations be made to the Industrial Accident Commission in this direction.

Coming down to the business of the C.M.A., the House adopted a budget which retains 1957 dues at \$50 per active member and provides that \$10 of that amount be earmarked for medical education. As was done last year, the House specified that 80 per cent of the contribution to medical education be allotted to the three California medical

schools which are not primarily tax-supported. The budget also carried a nominal appropriation for research into the causes of malpractice actions and suggested that additional research into public relations be undertaken.

Of prime interest in the elections was the choice of a new President-Elect, for which post the House unanimously picked Dr. Frank A. MacDonald of Sacramento. Dr. MacDonald is a former member of the C.M.A. Council and a former member of the Board of Trustees of California Physicians' Service. Thus he brings to his new post a wealth of background and experience.

Dr. James C. Doyle was reelected Speaker of the House of Delegates and Dr. J. Norman O'Neill of Los Angeles was named Vice-Speaker. For members of the Council, the House selected seven incumbents to succeed themselves. Thus Drs. Omer W. Wheeler, Robert O. Pearman, Samuel R. Sherman, Ralph C. Teall, Donald C. Harrington, Arthur A. Kirchner

and T. Eric Reynolds will serve additional three-year terms.

A new office, that of an additional delegate to the A.M.A., was filled with the election of Dr. Cyril J. Attwood of Oakland, with Dr. Arlo A. Morrison of Ventura serving as his alternate. Dr. John E. Vaughan of Bakersfield was also named as an alternate delegate to the A.M.A., to fill an open office, and Dr. Hartzell H. Ray of San Mateo was similarly elected.

For the 1957 Annual Session, the Council again selected the Ambassador Hotel, Los Angeles, as the place and the dates April 28 to May 1 as the time.

Thus the Association embarks on its second century on the heels of a meeting which drew 4,550 registrants and which was considered highly successful by all. It was obvious that both the science and the business of medicine were well represented and well nourished by this annual session.

Sidney J. Shipman—A Tribute

MEDICAL ORGANIZATIONS traditionally meet each year and, among other things, elect a titular head. In the California Medical Association this is the President-Elect.

Also in the tradition is the immediate preparation of a biography of this new officer, whose capabilities are spread before the membership as an introduction to the new chief. Thereafter the President-Elect—who in his next year becomes the President—may easily become the forgotten man, the one who holds the title while the governing bodies of the organization take over full responsibility for guiding the group's policies and activities.

Periodically, however, a man so outstanding comes along that his influence and his contribution to the advancement of the principles of medicine are felt throughout the entire profession. Sidney J. Shipman, just retired as President of the C.M.A., has proved himself to be such a man.

Sid Shipman came onto the Council of the C.M.A. in 1944 after a distinguished record in the San Francisco Medical Society and an equally outstanding career as a guiding member (and later president) of the National Tuberculosis Association. His influence on the Council was soon felt and his sage thought processes advanced him to Chairman of that body in 1949. Five years later he was chosen President-Elect and for the past two years has carried on the arduous duties of office without regard to the sacrifices involved. During this period he has traveled to all parts of the state

and has discussed with local medical leaders the local, state and national problems of medicine.

Throughout his official service in the C.M.A., Sid Shipman has consistently shown the tact, the understanding, the calm approach and the inherent honesty which have elevated him to high places in the other organizations he has served. His integrity has been apparent to all and his sound and dispassionate approach to medical problems has had an effect on others which has been both soothing and efficacious.

The California Medical Association is fortunate in having had Sidney J. Shipman as its leader. It is to be hoped that he will not become the forgotten man but that his talents may continue to be available in a consulting capacity.

Every Last Sunday Until 2011

EACH YEAR from now on, anyone wishing to know the date of the opening of the Annual Session of the California Medical Association will have to remember only this: The last Sunday in April, unless that happens to be Easter; when the last Sunday is Easter, the meeting will begin the first Sunday in May.

This rule, adopted by the Council at its most recent meeting, will make long-range planning easier not only for the C.M.A. but also for other organizations that may wish to relate the dates of their meeting to ours or to avoid conflict or overlapping.

By the way, unless something happens to throw the universe out of kilter, the next time Easter will fall on the last Sunday in April is the year 2011.

Letters to the Editor...

The following letter is a copy of one addressed primarily to American Diabetes Association, Inc., New York City.

Gentlemen:

The diabetic identification card, shown on page 21 of *Forecast* for May-June, 1956, is pretty, but for some very real purposes, is not worth the thin dime it costs to obtain. I am speaking from the standpoint of a physician of 40 years experience who, for more than that many years, has been familiar with police problems and who has, for a bit more than 4 years, been mildly diabetic.

In the first place, there are many similar diabetic identification cards in circulation none of which, including the card mentioned, can be expected to have any standing with law enforcement officers. In Los Angeles, and undoubtedly throughout the country, many "winos" and other chronic alcoholics who are *not* diabetic carry such diabetic identification cards and use them to try to talk the officer out of arresting them. For this reason, I know of no place where such cards are given consideration by police. The police cannot take to a physician every drunk who waves a diabetic identification card at them.

We cannot reasonably expect this situation to be improved as long as such cards are so easily obtained. To broadcast these cards in this manner reduces them to about the same value as a lead nickel. If perfect copies of the badges worn by the police of New York City were as easily obtainable as diabetic identification cards, no one would be able to distinguish between the real and the false and a person flashing a New York Police badge would have less authority than a Hottentot waving a spear.

Several years ago I wrote to Dr. Joslin and proposed the following system of diabetic identification cards. Dr. Joslin replied that he thought the idea

was excellent and that he was referring my letter to the A.D.A. It was evidently ignored.

1. Have some nationwide organization, such as the A.M.A. and its component societies, handle registration of diabetics and issue registered diabetic identification cards.

2. Have one standard registered diabetic identification card, *all* such cards to be *serially numbered* and, preferably, to carry a small photograph of the person to whom issued.

3. Have these cards issued *only* by centrally located units, such as the County or State Medical Societies, which shall keep a register by names and serial numbers of the cards and the persons to whom issued.

4. Provide standardized application forms to be filled out by the diabetic's personal physician, certifying to the fact that the person is diabetic, and requesting that a registered diabetic identification card be issued.

5. Registered diabetic cards to be issued *only* on the basis of certification as outlined above.

6. For purposes of permanency have diabetic identification cards mounted between plastic.

7. Establish a fee for such cards to cover cost of the cards and administration of the program, with provisions for free issuance to indigents.

Only by such a program can a diabetic identification card be expected to be respected by law enforcement personnel. Until such a program is established *do not* blame the police for the diabetic who erroneously lands in the drunk tank instead of the hospital.

Very truly yours,

JOHN H. SCHAEFER, M.D.

525 South Flower Street
Los Angeles

California MEDICAL ASSOCIATION

NOTICES & REPORTS



Frank A. MacDonald, M.D.

ON MAY 2, the C.M.A. House of Delegates unanimously elected Frank A. MacDonald of Sacramento to the post of President-Elect.

Dr. MacDonald was born in Rhode Island, of good Scotch parents. He went to school in Vermont till the age of 19, when good judgment prevailed and he persuaded his family to move to California. He did college work at the University of Southern California and then at Stanford, taking an A.B. degree at Stanford in 1921. He continued in the Stanford Medical School till he received his M.D. in 1925. After postgraduate work in surgery, he

entered the private practice of surgery in Sacramento in 1928 and is still so engaged.

Dr. MacDonald has been a member of the visiting staff of Sutter and Mercy Hospitals since 1928 and served as president of the staff of Mercy Hospital in 1953.

He was a member of the board of directors of the first hospital insurance plan in the United States (a pioneer blue cross plan) from 1932 to 1936. He was president of the Sacramento Society for Medical Improvement in 1936 and a delegate from that society to the C.M.A. in 1937 and 1938. In 1939 he succeeded Junius B. Harris as councilor from the eighth district (now the eleventh) and served as councilor for three terms, from 1939 to 1948. In 1949 he became a trustee of California Physicians' Service where he served two terms, to 1955. Of this time three years were spent on the C.P.S. fee schedule committee. He served on the C.M.A. committee on postgraduate activities from 1943 to 1944, on the legislative advisory committee from 1948 to 1954 and on the committee on Public Relations from 1951 to 1954. He served as a member of the Industrial Accident fee schedule committee for two terms.

In 1949 Dr. MacDonald became an alternate delegate from the C.M.A. to the A.M.A. and in 1952 was advanced to delegate, a position which he now holds.

DONALD A. CHARNOCK, M.D.	President
FRANK A. MacDonald, M.D.	President-Elect
JAMES C. DOYLE, M.D.	Speaker
J. NORMAN O'NEILL, M.D.	Vice-Speaker
DONALD D. LUM, M.D.	Council Chairman
ALBERT C. DANIELS, M.D.	Secretary-Treasurer
IVAN C. HERON, M.D.	Chairman, Executive Committee
DWIGHT L. WILBUR, M.D.	Editor
JOHN HUNTON	Executive Secretary
General Office, 450 Sutter Street, San Francisco 8	
ED CLANCY	Director of Public Relations

Southern California Office:

417 South Hill Street, Los Angeles 13 • Phone MAdison 6-0683

He has been a fellow of the American College of Surgeons (of which he is a life member) since 1934, and he served as president of the Northern California Chapter of the college in 1954.

Dr. MacDonald has a charming wife, Caroline, who often accompanies him to medical meetings. He has one son who is at present serving as assistant resident in surgery at Baylor University Medical School in Houston.

Dr. MacDonald is an ardent advocate of the value of medical organization and a staunch supporter of the C.M.A. and the A.M.A. He holds deep and firm convictions on a great variety of medical, political and socioeconomic problems and is vigorous in advancing and supporting these convictions. This vigor is tempered by an abiding sense of responsibility and is guided by one paramount principle, "Is the proposed course good for all of medicine and for all the people?" And firm though his convictions may be, he has the courage and the stature to change his position when this is shown to be desirable by changes in perspective and by development of events.

Conscientious, hard working, serious in approaching problems assigned to him, thorough and thoughtful in developing solutions to them, he attacks all his problems with a youthful zest that is contagious, and that offers a continuing challenge to his confreres of whatever age.

Through the years he has made a host of friends in the state government, from the janitor to the governor, and has given freely of his professional skill to so many members of the government that his friend, Dr. Dwight Murray, often refers to him as the "surgeon general of the legislature."

The office he now holds is regarded by many as an honor to be given in reward for past service. Frank MacDonald richly deserves this honor for the many years of devoted service he has given to the C.M.A.; and California physicians are eager and happy to honor him in this way. Of far greater importance is the honor he does to his colleagues in accepting this new responsibility and in sacrificing his personal and professional life for unselfish service to the profession which he loves.

RALPH C. TEALL, M.D.

Council Meeting Minutes

Tentative Draft: Minutes of the 417th Meeting of the Council of the California Medical Association, San Francisco, St. Francis Hotel, March 24, 1956.

The meeting was called to order by Chairman Lum in Room 220 of the St. Francis Hotel, San Francisco, at 9:30 a.m., Saturday, March 24, 1956.

Roll Call:

Present were President Shipman, President-Elect Charnock, Speaker Doyle, Secretary Daniels, Editor Wilbur and Councilors West, Wheeler, Loos, Wadsworth, Harrington, McPharlin, Lum, Bostick, Reynolds, Varden, Heron, Carey and Rosenow.

A quorum present and acting.

Absent for cause, Vice-Speaker Foster, Councilors Pearman, Teall and Kirchner.

Present by invitation, Messrs. Hunton, Clancy, Thomas and Gillette of C.M.A. staff; Howard Hassard, legal counsel; Drs. Carl M. Hadley and Arlo A. Morrison; Fred O. Field, legal counsel to the Los Angeles County Medical Association; and county society executive secretaries Bannister of Orange, Marvin of Riverside, Foster of Sacramento, Nute of San Diego, Neick of San Francisco, Thompson of San Joaquin, Wood of San Mateo, Donovan of Santa Clara, DeVere of Stanislaus and Funk of Solano.

1. Minutes for Approval:

(a) On motion duly made and seconded, minutes of the 416th meeting of the Council, held February 12, 1956, were approved.

(b) On motion duly made and seconded, minutes of the 256th meeting of the Executive Committee, held March 17, 1956, were approved.

2. Membership:

(a) A report of membership as of March 23, 1956, was received and ordered filed.

(b) On motion duly made and seconded in each instance, 15 applicants were voted Retired Membership. There were: Edwin W. Merrithew, Charles C. Morison, Clifford D. Sweet, Alameda-Contra Costa County; Charles R. Gailmard, Antony J. Greco, Los Angeles County; Cyril E. Lewis, Placer-Nevada-Sierra County; Ward C. Alden, K. L. Dole, James S. Forsythe, David C. Mock, San Bernardino County; Ethel D. Owen, San Francisco County; Gifford Sobey, San Luis Obispo County; Dorothea Lee, Charlotte L. Marvin, Charles E. Moore, Santa Clara County.

(c) On motion duly made and seconded in each instance, 22 applicants were voted Associate Membership. These were: Max W. Biggs, P. H. Calkins, Leslie Corsa, Jr., Francis A. Munson, Richard N. Reedy, Alameda-Contra Costa County; Gerald Fin-

kel, Dean W. Gilman, A. E. Hirst, Jr., Wilfred M. G. Jones, Howard A. Joos, William E. Nerlich, Los Angeles County; Bessie C. Martell, Napa County; John D. Reese, A. E. T. Rogers, Fletcher C. Stewart, Orange County; Laurens P. White, S. K. Hockstetter, Gilbert M. Loewe, San Francisco County; Thelma M. Quinn, Raymond H. Somers, Santa Clara County; Arthur J. Nash, Solano County; Elmo Alexander, Tulare County.

(d) On motion duly made and seconded in each instance, reductions of dues were voted for 16 applicants for reasons of illness or postgraduate study.

3. *Student American Medical Association:*

(a) On motion duly made and seconded, it was voted to meet the expenses of one representative of the California chapters of the Student A.M.A. in attending the inaugural meeting in New York to announce Medical Education Week.

(b) On motion duly made and seconded, it was voted to permit the California Chapters of the Student A.M.A. to send two representatives to the annual meeting of that organization, with the Association meeting tourist transportation costs for such representatives.

4. *Committee on Public Health and Public Agencies:*

Councilor West reported that the Advisory Committee to the Crippled Children's Services was continuing its study of the criteria to be used in qualifying specialists to handle cases in this field.

5. *Woman's Auxiliary:*

On motion duly made and seconded, it was voted to commend the Woman's Auxiliary for its generous contributions to the families of physicians who had suffered damages in the recent floods.

On motion duly made and seconded, it was voted to appoint Drs. R. Stanley Kneeshaw and Robert M. Shelton as members of the Advisory Committee to the Woman's Auxiliary for the 1956-1957 year.

6. *Nominations for C.P.S. Trustees:*

Councilor Sherman reported that his committee had voted to nominate Drs. Leon O. Desimone, Mer-

lin L. Newkirk, Robb Smith and Bert L. Halter and Mr. Robert A. Hornby for election as Trustees of California Physicians' Service. On motion duly made and seconded, these nominations were approved.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 4:45 p.m.

DONALD D. LUM, M.D., *Chairman*

ALBERT C. DANIELS, M.D., *Secretary*

Executive Committee Minutes

Tentative Draft: Minutes of the 257th Meeting of the Executive Committee of the California Medical Association, San Francisco, March 24, 1956.

The meeting was called to order by Chairman Heron in Room 220 of the St. Francis Hotel, San Francisco, on Saturday, March 24, 1956, at 12:30 p.m.

Roll Call:

Present were President Shipman, President-Elect Charnock, Speaker Doyle, Council Chairman Lum, Auditing Committee Chairman Heron, and, ex-officio, Secretary Daniels.

Present by invitation were Councilor Hollis L. Carey, Messrs. Hunton, Clancy, Gillette and Thomas of C.M.A. staff, and legal counsel Hassard.

A quorum present and acting.

1. *Loans to Flood Victims:*

The committee reviewed applications from nine members for loans from funds voted earlier by the Council, for the rehabilitation of damages caused by floods in several counties. On motion duly made and seconded, several such loans were approved for immediate disbursement.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 12:40 p.m.

IVAN C. HERON, M.D., *Chairman*

ALBERT C. DANIELS, M.D., *Secretary*

In Memoriam

BODMAN, EDWARD W. Died in San Marino, April 20, 1956, aged 76. Graduate of Rush Medical College, Chicago, 1907. Licensed in California in 1927. Doctor Bodman was a member of the Los Angeles County Medical Association.



BROWN, GEORGE W. Died March 29, 1956, aged 73. Graduate of Central Medical College of St. Joseph, Missouri, 1898. Licensed in California in 1913. Doctor Brown was a retired member of the Los Angeles County Medical Association, the California Medical Association, and an associate member of the American Medical Association.



CAMPICHE, PAUL S. Died in Lausanne, Switzerland, April 22, 1956, aged 80. Graduate of the Université de Lausanne Faculté de Médecine, Switzerland, 1899. Licensed in California in 1908. Doctor Campiche was a retired member of the San Francisco Medical Society, the California Medical Association, and an associate member of the American Medical Association.



CHAIN, JOHN N. Died in Eureka, April 14, 1956, aged 79. Graduate of the University of California Medical School, Berkeley-San Francisco, 1904. Licensed in California in 1904. Doctor Chain was a member of the Humboldt County Medical Society, a life member of the California Medical Association, and an associate member of the American Medical Association.



COPELAND, EDWIN KING. Died in Woodland, April 18, 1956, aged 56. Graduate of the University of Oklahoma School of Medicine, Oklahoma City, 1930. Licensed in California in 1936. Doctor Copeland was a member of the Yolo County Medical Society.



FUICKS, DELLIVAN M. Died in Sacramento, April 17, 1956, aged 52. Graduate of the State University of Iowa College of Medicine, Iowa City, 1927. Licensed in California in 1938. Doctor Fuicks was a member of the Sacramento Society for Medical Improvement.



HAUMEDER, HANS. Died in Oakland, April 27, 1956, aged 65, of heart disease. Graduate of the Medizinische Fakultät der Universität, Wien, Austria, 1914. Licensed in California in 1943. Doctor Haumeder was a member of the Alameda-Contra Costa Medical Association.



LEE, LINFORD H. Died in Los Angeles, April 11, 1956, aged 62, of heart disease. Graduate of the University of Nebraska College of Medicine, Omaha, 1921. Licensed in California in 1928. Doctor Lee was a member of the Los Angeles County Medical Association.

MANNING, ARMAS A. Died in Los Angeles, April 24, 1956, aged 49. Graduate of Wayne University College of Medicine, Detroit, Michigan, 1935. Licensed in California in 1935. Doctor Manning was a member of the Los Angeles County Medical Association.



MCALLEAR, LOWELL E. Died in Berkeley, April 15, 1956, aged 46, of subdural hematoma due to trauma. Graduate of the University of Oregon Medical School, Portland, 1935. Licensed in California, 1937. Doctor McAlear was a member of the Alameda-Contra Costa Medical Association.



PRATT, MATHEW D. Died recently. Graduate of the University of California Medical School, Berkeley-San Francisco, 1900. Licensed in California in 1901. Doctor Pratt was a member of the Shasta County Medical Society, a life member of the California Medical Association, and an associate member of the American Medical Association.



STEINBERG, JAMES. Died in Los Angeles, April 23, 1956, aged 66, of heart disease. Graduate of Cornell University Medical College, New York, 1911. Licensed in California in 1911. Doctor Steinberg was a member of the Los Angeles County Medical Association.



WILSON, DOXEY R. Died in San Jose, May 1, 1956, aged 72, from a fall in his home. Graduate of Cooper Medical College, San Francisco, 1908. Licensed in California in 1908. Doctor Wilson was a member of the Santa Clara County Medical Society.



WINTERS, WALTER PAYNE. Died in San Diego, November 9, 1955, aged 85, of a cerebral vascular accident and arteriosclerosis. Graduate of the New York Medical College, Flower and Fifth Avenue Hospitals, New York, 1906. Licensed in California in 1910. Doctor Winters was a retired member of the San Diego County Medical Society, the California Medical Association, and an associate member of the American Medical Association.



WOOD, DENNISTOUN, JR. Died April 11, 1956, aged 50. Graduate of Stanford University School of Medicine, Stanford University-San Francisco, 1938. Licensed in California in 1938. Doctor Wood was a member of the Santa Clara County Medical Society.



WOOD, GRANVILLE NEWMAN, JR. Died in Palo Alto, May 2, 1956, aged 67, of heart disease. Graduate of Stanford University School of Medicine, Stanford University-San Francisco, 1924. Licensed in California in 1924. Doctor Wood was a member of the Santa Clara County Medical Society.



WOMAN'S AUXILIARY

TO THE CALIFORNIA MEDICAL ASSOCIATION

A Summing Up

During the past year, your Woman's Auxiliary has seen growth in both size and activity. At this writing, our membership has topped 6,440, and with new members coming in daily we expect to pass the 6,500 mark before our year's record is in.

These thousands of Auxiliary members have not been idle. Due to their hard work and good ideas, the California Woman's Auxiliary leads the United States not only in size but in its large and productive program.

Organized Activities

Some of the work which your Auxiliary has done in the past year can be measured in dollars and cents. For instance:

For **American Medical Education Foundation**, we have raised \$6,910 to date, with two counties yet to report. This is well above our \$1-a-member goal, and already some \$1,100 above the sum raised the previous year.

For **Physicians' Benevolence**, we have raised over \$3,500—also incomplete returns. While this is not up to the mark we had set, it is well above amounts previously raised.

For **Nurse Recruitment**, your Auxiliary has accounted for the sums of \$25,500 for Scholarships and \$5,000 in loans . . . plus \$400 used for materials and \$50 for other expenses of our program. This brings the grand total—and it is grand—to \$30,950.

For **Community Service Groups** such as Red Cross, Blood Banks, Cerebral Palsy Programs, etc.; for **Hospitals**; for **Christmas Donations**; your Auxiliary has raised a total of more than \$16,000 in the past year.

Of equal importance is some of the less tangible work that we have done. Twenty-three counties have had programs in **Mental Health**, with much time being spent with geriatric patients and in rehabilitation. A significant contribution has also been made in this field in helping to change the public attitude toward mental disease.

In **Legislation**, your Auxiliary has continued to work actively with the C.M.A. and to support its legislative program . . . in **Civil Defense**, we have continued to participate in our community programs . . . in promoting *Today's Health*, at least six of our counties have topped their subscription quota, and we are over 1,000 subscriptions ahead of our previous record.

Courier Remains Tops

The official publication of your Woman's Auxiliary, *Courier* was last year once again recognized officially as the best of its kind in the coun-

try. Its importance is being recognized locally, too, by the upping of its yearly budget to \$5,000, and by specifying that it is to have at least five issues yearly, with the dates of publication now defined in our by-laws.

Revision of By-Laws

As our organization has grown, so have the problems of our administration. Last year saw some needed changes made in our by-laws. Among the more noteworthy of these changes was the addition of a Spring Board Meeting, and the streamlining of our State Board of officials.

Budget Changes

Our new budget also reflects our growth. New provisions now allow for two delegates to attend the National Convention, both president and president-elect. More newsworthy, perhaps, is the fact that the new budget at last makes allowance for the rise in the cost of travel, and these ladies can now go "first class."

Flood Assistance

Your Auxiliary gratefully acknowledges the commendation received from the C.M.A. Council for our work in assisting physicians' families who were victims of the tragic floods last December. We are proud that we were able to raise \$5,000 for their use "with no strings attached." Of this amount, \$500 was contributed by the National Auxiliary, \$1,000 by the State Auxiliary, and the rest by County Auxiliaries and by personal donations from Auxiliary members.

Incidentally, some of our work in civil defense paid off well during the flood disaster period. Auxiliary members who were familiar with civil defense procedures were able to work well with the authorities during the disaster period. And members familiar with the nurses' aide courses or practical nurses' courses found that their knowledge stood them in good stead.

Ave Atque Vale

It has been our privilege and pleasure to work for and with the C.M.A. during the past year. To all of you who have given us guidance, counsel and encouragement, we express our deep and sincere thanks. We hope that we can take some pride in our year's achievements—and, more important, we hope that you can, too.

NEWS & NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

Dr. Paul C. Samson, Oakland, was installed as president of the American Trudeau Society at the annual meeting of the National Tuberculosis Association, held last month in New York City. Dr. Samson is a past president of the California Tuberculosis and Health Association.

FRESNO

Dr. Kendall B. Holmes was elected president of the Fresno County Heart Association at a recent meeting of the association. He succeeds Dr. Leopold J. Snyder. Dr. J. Malcolm Masten was elected vice-president and Dr. Bruce Berg, secretary.

LOS ANGELES

Beginning July 13, 1956, the Postgraduate Division of the School of Medicine of the University of Southern California will commence a **year-long home course in electrocardiography**. Each week a particular subject will be discussed and exemplified by accompanying tracings. In addition "unknown" electrocardiograms on subjects already discussed will be included. The following week a detailed interpretation of the "unknown" tracings will be attached to the new lesson. The fee is \$100 for 52 weeks. Further information may be obtained from Phil R. Manning, M.D., director, Postgraduate Division, USC School of Medicine, 2025 Zonal Avenue, Los Angeles 33.

* * *

At the annual meeting of the Los Angeles County Heart Association last month, **Dr. Edward Shapiro**, Beverly Hills, was elected president to succeed Dr. Alex A. Roger, also of Beverly Hills. Dr. Mitchell D. Covell was elected vice-president and Dr. Sidney S. Sobin, secretary.

* * *

Dr. Joseph L. Robinson of Los Angeles was elected president of the California Tuberculosis and Health Association at the annual meeting held in San Francisco in April.

* * *

The University of California Extension will join with the UCLA School of Medicine to give a **summer 1956 course in Techniques of Hypnosis**. The three-day course will meet in the first floor lecture room of the Medical Center on the Los Angeles Campus July 9, 10, and 11, with the program consisting of demonstrations and practice training. It is designed to acquaint physicians and dentists with methods of inducing hypnosis, the techniques of inducing various degrees of hypnosis in various types of patients, and the control of patients with different kinds of problems. Fee for the course is \$50.

A course in Advanced Techniques and Application of Hypnosis meets at the Los Angeles Medical Center July 11, 12, and 13. Fee for this course is \$100.

Registration blanks and information sheets concerning both courses are available on request to University of California Extension, Medical, Los Angeles 24 (BRadshaw 2-6161).

Some 120 medical golfers participated in the California Medical Association **golf tournament** which was played at the Wilshire Country Club, Los Angeles, at the time of the C.M.A. annual meeting. Dr. Al Heldfond, a 16 handicapper from Beverly Hills, made the course in 78 strokes for a net 62. He won the Boyle & Co. perpetual low net trophy for this state tournament. Dr. Paul Travis of Downey had the low gross with a 72.

Following is a list of other winners in the various classifications:

CLASS A

Classification	Name	Net Score
First low net	K. Kearns	63
Second low net	S. Azen	69
Third low net	J. Moore	69
Fourth low net	G. Erickson	70
First low gross	W. Williams	76
Second low gross	J. Albers	77

CLASS B

First low net	H. Zide	66
Second low net	A. Ollstein	68
Third low net	G. B. Smith	70
Fourth low net	N. Schumaker	70
First low gross	U. Wissner	82
Second low gross	E. Crane	86

CLASS C

First low net	R. McKenna	66
Second low net	J. Frieden	67
Third low net	J. R. Johnson	69
Fourth low net	A. Hedge	71
First low gross	H. Briskin	95
Second low gross	R. Burnett	96

SAN DIEGO

Dr. Homer D. Peabody, Jr., was installed as president of the San Diego County Tuberculosis and Health Association at a recent meeting of the organization, and **Dr. Albert L. Anderson** was elected president-elect. Dr. Peabody succeeded Dr. David H. Thompson.

SAN FRANCISCO

Dr. William C. Voorsanger, San Francisco, was presented with an award and certificate for "outstanding accomplishment and service in the field of chest diseases in California and nationally" at the annual meeting of the California Chapter of the American College of Chest Physicians, which was held in Los Angeles last April.

* * *

Dr. Gerald B. O'Connor, San Francisco, was elected president of the California Society of Plastic Surgeons at the annual meeting of the society, held recently at Del Monte.

* * *

A grant from the Muscular Dystrophy Association, Inc., has made it possible to expand services at Children's Hospital for patients with muscular dystrophy and amyotonia, according to an announcement from the hospital. Services available (not limited to residents of San Francisco) are: Physical therapy, occupational therapy and social service—all under medical supervision.

Referral is by private physician or clinic. The referral should be accompanied by a summary of diagnostic studies.

Admissions are made through the Muscular Dystrophy Clinic conducted the third Wednesday of each month under the supervision of Drs. Lloyd E. Hardgrave and Robert Terry.

Appointments may be made by calling Children's Hospital, Bayview 1-1200, and asking the operator for Physical Therapy, extension 387.

Information may be obtained by phoning or writing to Mrs. Miriam Peizer, Social Worker, Children's Hospital, 3700 California Street, San Francisco.

Among the unrestricted grants of \$4,850,000 to seven university medical schools announced recently by the Commonwealth Fund was one of \$1,000,000 to **Stanford University School of Medicine**. The awards may be used in whatever ways the schools consider most effective to improve their programs of medical education. There is a proviso, however, that the school must raise funds to match the amount of the grant.

"In making these grants," the announcement said, "the Fund recognizes the urgent and increasing need for funds for strengthening faculty and raising teaching salaries, clarifying educational objectives, reviewing curricula and restructuring programs of medical education. However, since each medical school's specific requirements differ in priority, the Fund places no restrictions on these gifts."

GENERAL

Representatives of state societies of internal medicine met in Los Angeles in April, just before the annual meeting of the American College of Physicians and completed arrangements for the **formation of the American Society of Internal Medicine** to coordinate and strengthen the activities of the various state societies of internal medicine at a national level. Officers and committee members who will serve as an interim committee include Dr. Lewis T. Bullock,

Los Angeles, chairman; and Dr. Claude P. Callaway, San Francisco, secretary-treasurer. National headquarters of the newly formed organization for the current year will be at San Francisco, present headquarters of the California Society of Internal Medicine.

* * *

Twenty-eight Californians were **elected to fellowship in the American College of Physicians** at the annual meeting of the organization which was held in Los Angeles last April. They are: Olov Albert Blomquist, Los Angeles; Ralph Bookman, Los Angeles; Robert Irving Boyd, Pasadena; Robert Rayner Commons, Beverly Hills; Eliot Corday, Beverly Hills; James Newton DeLamater, San Marino; Sim Pope Dimitroff, Hollywood; Edmund Lawrence Dubois, Beverly Hills; Archie Lee Edgar, San Diego; Hugh Allen Edmondson, Los Angeles; Benjamin B. Faguet, San Diego; John Walker Findley, Jr., San Mateo; James Thomas Fowler, Jr., Long Beach; Frederick Mullen Hebert, Berkeley; William Lane Hewitt, Los Angeles; Ralph E. Homann, Jr., Los Angeles; Bernard Hyde, Los Angeles; William Frederick Luttgens, San Francisco; William Earl McCullough, Santa Barbara; Lee Munroe, San Diego; Robert William Oblath, North Hollywood; William Francis Oliver, Santa Barbara; John Lucien Reynolds, Los Angeles; Michael A. Rubinstein, Beverly Hills; Ernest W. Shaw, San Diego; Norman Wesley Specht, Los Angeles; Jerome Victor Treusch, Beverly Hills; and Arthur Edward Varden, San Bernardino.

POSTGRADUATE EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education assemblies and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Assistant Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Dermatology, 1956, June 22 and 23. Ten and one-half hours. Fee: \$35.00.

Laboratory Technicians Symposium, June 23 and 24. Twelve hours. Fee: \$20.00.

Techniques of Hypnosis, July 9 to 11. Fifteen hours. Fee: \$50.00.

Advanced Techniques and Application of Hypnosis, July 11 to 13. Fifteen hours. Fee: \$100.00.

Recent Advances in Surgery, July 16 to 18. Nineteen and one-half hours. Fee: \$50.00 for three days, \$20.00 per day.

Surgery of Trauma, July 19 and 20. Twelve hours. Fee: \$35.00.

Recent Advances in Medicine, July 23 to 27. Thirty-five hours. Fee: \$75.00 for full week or \$20.00 per day.

Anesthesia Seminar, August 27 to 29. Eighteen hours. Fee: \$50.00.

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Fundamental Principles of Radioactivity and the Diagnostic and Therapeutic Uses of Radioisotopes. Two or three month course limited to one enrollee per month. Tuition: \$250.00 per month.

Internal Medicine at the Bedside, June 18-22. Forty hours. Fee: \$100.00.

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrrose 4-3600, Ext. 665.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Diagnosis and Management of Cardiovascular Diseases, July 20, 21 and 22, Hotel Statler and Good Hope Clinic, twenty-four hours. Fee: \$65.00. Registration closes July 10, 1956.

Home Course in Electrocardiography. Begins July 13. Fifty-two weeks. Fee: \$100.00.

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. Residents admitted without fee. Tuition for all other physicians: \$30.00. (Each session all-inclusive.)

Contact: Phil R. Manning M.D., Director of Medical Extension Education, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

Anesthesiology. Daily, full-time, four months, beginning each four months. Fee: \$300.

Diseases and Injuries of Bones and Joints. Daily, July 2 to July 31. Full time. Fee: \$100.00.

Basic Science Course in Surgery. Full time, nine months beginning October 1. Fee: \$800.00.

Contact: Chairman, Section on Graduate and Postgraduate Medicine, College of Medical Evangelists, 1720 Brooklyn Ave., Los Angeles 33. ANgelus 9-9131, Ext. 205.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE INSTITUTE

SACRAMENTO VALLEY COUNTIES in association with Stanford University School of Medicine, June 21, 22, 23, Cal-Neva Lodge, Lake Tahoe.

Contact: C. A. Broadus, M.D., Director of Postgraduate Activities, P.O. Box A-1, Carmel, California, or Mrs. Margaret H. Griffith, Assistant Director, Postgraduate Activities, California Medical Association, 417 So. Hill St., Los Angeles 13.

Medical Dates Bulletin

SUMMER MEETINGS

IDAHO STATE MEDICAL ASSOCIATION annual meeting, June 17-20, Sun Valley, Idaho.

Contact: Armand L. Bird, executive secretary, Idaho State Medical Association, 364 Sonna Building, Boise, Idaho.

MEDICAL LIBRARY ASSOCIATION 55th annual meeting, June 18 to 22, Hotel Statler, Los Angeles.

Contact: Mrs. Ella Crandall, librarian, Los Angeles County General Hospital, Los Angeles.

WYOMING STATE MEDICAL SOCIETY annual meeting, Jackson Lake Lodge, Moran, Wyoming, June 29 and 30.

Contact: A. R. Abbey, Box 2036, Cheyenne, Wyoming.

COLORADO DIVISION OF THE AMERICAN CANCER SOCIETY 10th annual Rocky Mountain Cancer Conference, Shirley-Savoy Hotel, Denver, Colorado, July 11 and 12.

Contact: John S. Bouslog, M.D., 835 Republic Building, Denver 2, Colorado.

NEVADA STATE MEDICAL ASSOCIATION annual meeting in conjunction with Reno Surgical Society, Riverside Hotel, Reno, Nevada, August 22 to 25.

Contact: Lowell Peterson, M.D., chairman, Arrangements and Program Committee, 130 North Virginia St., Reno, Nevada.

SEPTEMBER MEETINGS

ST. JOHN'S HOSPITAL Postgraduate Assembly, September 10, 11, 12, 9 a.m. to 4 p.m. and 8 to 9 p.m. Elks Club, Santa Monica.

Contact: John C. Eagan, M.D., Director, 1245 Glendon Ave., Los Angeles 24.

STOCKTON POSTGRADUATE STUDY CLUB, Thursday evenings, September 13 to November 15, Stockton State Hospital.

Contact: A. Merchant, M.D., Medical-Dental Bldg., Stockton.

WASHINGTON STATE MEDICAL ASSOCIATION Annual Meeting, Olympic Hotel, Seattle, September 16-19.

Contact: Mr. Ralph W. Neill, executive secretary, 1309 Seventh Ave., Seattle, Washington.

SAN DIEGO COUNTY GENERAL HOSPITAL TENTH ANNUAL POSTGRADUATE ASSEMBLY. September 19-20.

Contact: Howard B. Kirtland, Sr., M.D., Chairman, Postgraduate Committee, 3505 Fourth Avenue, San Diego 3.

CALIFORNIA SOCIETY OF INTERNAL MEDICINE ANNUAL MEETING. September 29, La Playa Hotel, Carmel.

Contact: Mrs. Mildred B. Coleman, Assistant Secretary, Room 515, 384 Post Street, San Francisco 8.

OCTOBER MEETINGS

SAN FRANCISCO HEART ASSOCIATION Annual Postgraduate Symposium, October 3, 4, 5, 1956, St. Francis Hotel, San Francisco.

Contact: Executive director, 604 Mission St., San Francisco.

ALAMEDA-CONTRA COSTA DIABETES ASSOCIATION one-day Symposium on Oral "Insulinoids," October 3, Highland-Alameda County Hospital, Oakland.

Contact: Institute for Metabolic Research, Highland-Alameda County Hospital, Oakland.

AMERICAN CANCER SOCIETY, California Division, Annual Cancer Conference, October 4, 2 to 5 p.m., Fairmont Hotel, San Francisco.

Contact: Otto Pflueger, M.D., Conference chairman, 384 Post St., San Francisco.

HERRICK MEMORIAL HOSPITAL Medical Staff Second Annual Postgraduate Symposium, 9 a.m.-5 p.m., October 5, Berkeley High School Little Theatre, Allston Way between Grove and Milvia, Berkeley, Calif.

Contact: Administrator's Office, Herrick Hospital, Berkeley, or telephone: THornwall 5-0130.

SAN DIEGO COUNTY HEART ASSOCIATION Professional Symposium, U. S. Naval Hospital Auditorium, Balboa Park, San Diego, October 9.

Contact: O. Martin Avison, executive director, San Diego County Heart Association, 1651 Fourth St., San Diego 1.

LOS ANGELES COUNTY HEART ASSOCIATION 26th Annual Symposium on Heart Disease, Wilshire-Ebell Theatre, 4401 West 8th St., Los Angeles, October 10 and 11.

Contact: Robert A. Pike, executive director, Los Angeles County Heart Association, 316 South Bonnie Brae, Los Angeles 57 or telephone DUnkirk 8-4127.

CALIFORNIA ACADEMY OF GENERAL PRACTICE 8th Annual Scientific Assembly, Hotel Statler, Los Angeles, October 14, 15, 16, 17.

Contact: William W. Rogers, executive secretary, California Academy of General Practice, 461 Market St., San Francisco.

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KEY TO ABBREVIATIONS USED

(Or.)—Original Article; (Ed.)—Editorial; (CMA)—California Medical Association; (CR)—Case Report; (I)—Information; (LE)—Letters to the Editor; (MJ)—Medical Jurisprudence.

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Soap, Face Tissues May Cause Dermatitis

It apparently isn't possible to put out a product for use on the skin that won't cause somebody, somewhere, to break out in a rash, according to two reports made recently.

A new product might be used safely by two million people but not by the one who is sensitive to something in it. Doctors treating hard-to-explain skin troubles often have a hard time finding a solution unless they can discover the individual's particular sensitivity. The list of possible causes of sensitivity is long.

Two more items—an antiseptic soap and facial tissues—were added to the list by reports in a recent issue of the *Journal of the American Medical Association*.

The report by Irvin H. Blank, Ph.D., of the Harvard Medical School dermatological research laboratories, Boston, said that ordinary soap generally won't bother anybody. But excessive use might be partly responsible for skin trouble or aggravate a preexisting skin condition among a few people. And some rare individuals have been found to be sensitive to dyes or perfumes in otherwise harmless soap. Dr. Blank said he has now found this is also true of a soap containing a chemical intended to make it antiseptic.

In the other report, Drs. Samuel M. Peck and Laurence L. Palitz, New York, said so-called "wet strength" facial tissues, which have been treated to make them more moisture resistant, might bother some people.

Dr. Blank said the presence of a chemical (tetramethylthiuram disulfide) in an antiseptic soap causes rash among persons already sensitive to the chemical from contact with rubber products containing it. However, few other persons appear to be sensitive to the chemical in the soap. In a 17-month period only about one case of dermatitis for every two million bars of soap sold was reported to the manufacturer, who has kept close watch on the situation. Dr. Blank concluded that there appears to be no more allergic reactions to the soap among ordinary users than there were before the addition of the chemical.

The New York physicians found that three of 50 patients who underwent various tests were allergic to synthetic resins, agents used to make "wet strength" facial tissues more moisture resistant. There were no reactions among the patients to tissues without the resins.

Tissues containing these resins may be considered as a cause of dermatitis, especially in the presence of breaks in the skin, such as those following a cold, the doctors said.

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Heart-Lung Machine Reducing Operative Risk

The experimental heart-lung machine already is lessening the risk of at least one serious heart operation, according to a group of Rochester, Minn., researchers.

They used the machine during surgery on 20 patients who had congenital defects in the wall of one heart chamber, complicated by high blood pressure in the lungs.

Sixteen of the patients, including 15 children under 12 years and one 29-year-old man, survived and showed pronounced improvement. Four children died of pulmonary complications.

However, only one death occurred in the last 13 operations, which indicates that increasing experience with the machine "already has lessened the risk of operation," they stated in a recent issue of the *Journal of the American Medical Association*.

Ventricular septal defects with pulmonary hypertension are serious and may result in death in early infancy, a handicapping disability in childhood, or invalidism and a shortened life span in adulthood. But, the authors said, the results of these operations show that the surgical risk to the patient is "acceptably low, considering the severity of the condition." The risk depends on the age, general health, and the

presence or absence of cardiac failure and pulmonary complications.

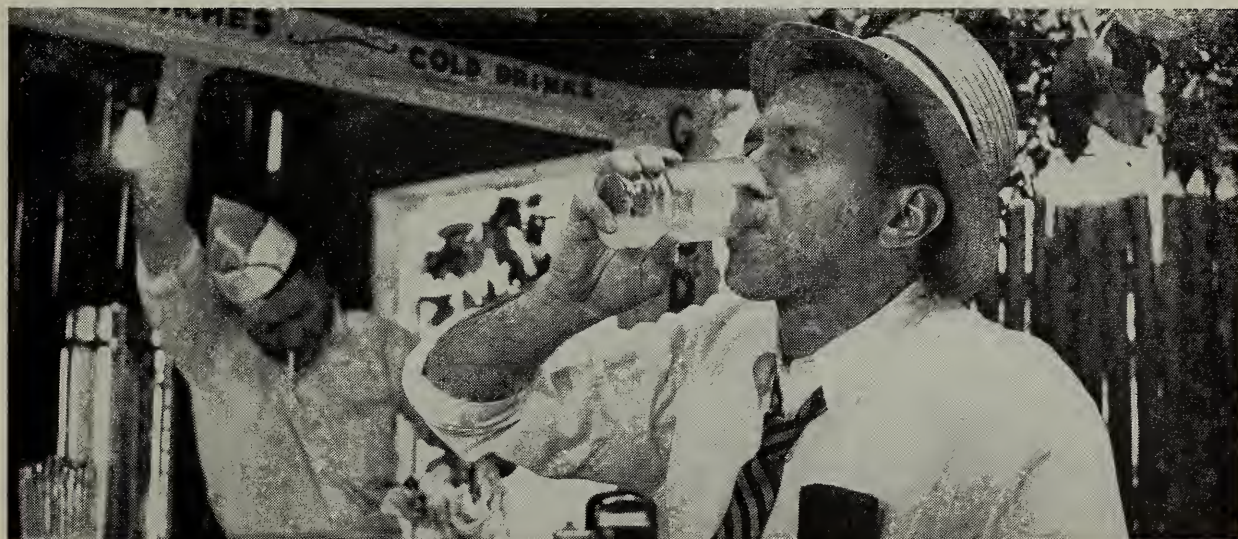
During surgery the blood is shunted past the heart and lungs and diverted into the machine where it receives oxygen before returning to the body. Before the machine was developed, circulation in such operations was maintained by means of a human donor.

The 16 patients who survived showed improved heart conditions, improved appetite, weight gain, and increased ability to exercise within several weeks to months after the operation. The operations were performed between March and October, 1955.

Mayo Clinic and Mayo Foundation staff members who made the report are James W. DuShane, M.D., John W. Kirklin, M.D., Robert T. Patrick, M.D., David E. Donald, B.V.S., M.R.C.V.S., Howard R. Terry, Jr., M.D., Howard B. Burchell, M.D., and Earl H. Wood, Ph.D.

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BOOKS RECEIVED

ADRENAL FUNCTION IN INFANTS AND CHILDREN—A Symposium—Edited by Lytt I. Gardner, M.D. Associate Professor, Department of Pediatrics, State University of New York, College of Medicine, Syracuse, New York. Grune and Stratton Book Company, 1956. New York-London. 221 pages, \$6.75.

ATLAS OF GENERAL SURGERY—Joseph R. Wilder, M.D., Assistant Professor of Surgery. The New York Medical College. The C. V. Mosby Company, St. Louis, 1955. 222 pages, 101 plates, \$13.50.

BELLEVUE IS MY HOME—Salvatore R. Cutolo, M.D., Doubleday & Company, Inc., Garden City. 1956. 317 pages, \$4.00.

COLLAGEN DISEASES—Including Systemic Lupus Erythematosus, Polyarteritis, Dermatomyositis, Systemic Scleroderma, Thrombotic Thrombocytopenic Purpura—John H. Talbott, M.D., Professor of Medicine, University of Buffalo School of Medicine, and R. Moleres Ferrandis, M.D., Training Fellow in Arthritis of the Western New York Chapter of the Arthritis and Rheumatism Foundation, Grune and Stratton, Inc., New York, 1956. 232 pages, \$6.50.

DISTURBANCES OF BODY FLUIDS—Clinical Recognition and Management—Second Edition—John H. Bland, M.D., Associate Professor of Medicine, University of Vermont College of Medicine. W. B. Saunders Company, Philadelphia, 1956. 522 pages, 109 illustrations, \$11.50.

DOCTOR AND PATIENT AND THE LAW—Third Edition—Louis J. Regan, M.D., LL.B., Member State Bar of California, Professor of Legal Medicine, College of Medical Evangelists; Clinical Professor of Forensic Medicine, School of Medicine, University of Southern California. The C. V. Mosby Company, St. Louis, 1956. 716 pages, \$12.50.

ELECTROCARDIOGRAPHY—Fundamentals and Clinical Application—Second Edition—Louis Wolff, M.D.—Visiting physician, consultant in Cardiology and Chief of the Electrocardiographic Laboratory, Beth Israel Hospital; Assistant Clinical Professor of Medicine, Harvard Medical School. W. B. Saunders Company, Philadelphia, 1956. 342 pages, 199 illustrations, \$7.00.

FIBROCYSTIC DISEASE OF THE PANCREAS—Report of the Eighteenth Ross-PEDIATRIC RESEARCH CONFERENCE. Issued by Ross Laboratories (formerly M & R Laboratories), Columbus 16, Ohio. 92 pages.

GYNECOLOGIC CANCER—2nd edition—James A. Cor-scaden, Ph.B., M.D., Professor Emeritus of Clinical Gynecology, College of Physicians and Surgeons, Columbia University, The Williams and Wilkins Company, Baltimore, 1956. 546 pages, \$10.00.

HEALTH OBSERVATION OF SCHOOL CHILDREN—A Guide for Helping Teachers and Others to Observe and Understand the School Child in Health and Illness—2nd edition—George M. Wheatley, M.D., M.P.H., Third Vice-President, Health and Welfare, Metropolitan Life Insurance Company—Grace T. Hallock, coauthor of Health for Better Living Series, Understanding Health, Health Heroes Series, and other health books. The Blakiston Division McGraw-Hill Book Company, Inc., New York, Toronto, London. 1956. 488 pages, \$6.50.

HUNTERDON MEDICAL CENTER, The story of one approach to Rural Medical Care—Ray E. Trussell, M.D. Published for the Commonwealth Fund by Harvard University Press, Cambridge, Massachusetts. 1956. 236 pages, \$3.75.

IN THE DOCTOR'S OFFICE—The Art of Being a Medical Assistant—2nd edition—Esther Jane Parsons, J. B. Lippincott Company, Philadelphia. 1956. 326 pages, \$3.95.

LABORATORY TESTS—In Common Use—Solomon Garb, M.D., Assistant Professor of Clinical Pharmacology, Cornell University Medical College, Springer Publishing Company, Inc., 44 East 23rd Street, New York, 1956. 160 pages, \$2.00.

LAUGHTER AND THE SENSE OF HUMOR—Edmund Bergler, M.D. Intercontinental Medical Book Corp. in co-operation with Grune & Stratton, Inc., New York. 297 pages, \$5.00.

MODERN PILGRIM'S PROGRESS FOR DIABETICS, A—Garfield G. Duncan, M.D., Clinical Professor of Medicine, Jefferson Medical College, etc. W. B. Saunders Company, Philadelphia, 1956. 222 pages, \$2.50.

MODERN TREATMENT YEARBOOK—1956—A Yearbook of Diagnosis and Treatment for the General Practitioner—Sir Cecil Wakeley, Bt., K.B.E., C.B., LL.D., M.Ch., D.Sc., F.R.C.S., F.R.S.E., F.R.S.A., F.A.C.S., F.R.A.C.S., Fellow of King's College, London, Editor. The Medical Press, London. Distributed in U.S.A. by Williams and Wilkins Company. 1956. 344 pages, \$6.00.

NEUROSES IN CLINICAL PRACTICE, THE—Henry P. Laughlin, M.D., Assistant Clinical Professor of Psychiatry, George Washington University School of Medicine. W. B. Saunders Company, Philadelphia, 1956. 802 pages, \$12.50.

OUR BLIND CHILDREN—Growing and Learning with Them—Berthold Lowenfeld, Ph.D., Superintendent, California School for the Blind, Berkeley. Charles C. Thomas, Publisher, Springfield, 1956. 205 pages, \$5.50.

POLICE DRUGS—Jean Rolin, Translated by Laurence J. Bendit. Philosophical Library, New York. 1956. 194 pages, \$4.75.

PRACTICE OF PSYCHIATRY IN GENERAL HOSPITALS, THE—A. E. Bennett, M.D., Associate Clinical Professor of Psychiatry, University of California School of Medicine, Eugene A. Hargrove, M.D., Assistant Professor of Psychiatry, University of North California, School of Medicine; and Bernice Engle, M.A., Research Associate, Department of Psychiatry, University of California School of Medicine. University of California Press, Berkeley, 1956. 178 pages, \$4.00.

PSYCHOANALYSIS AND PSYCHOTHERAPY—Developments in Theory, Technique, and Training—Franz Alexander, M.D., Director, Chicago Institute for Psychoanalysis, Clinical Professor of Psychiatry, University of Illinois, W. W. Norton & Company, Inc., New York. 1956. 299 pages, \$4.75.

ROCHESTER REGIONAL HOSPITAL COUNCIL, THE—Leonard S. Rosenfeld, M.D., M.P.H., and Henry B. Makover, M.D. Published for The Commonwealth Fund by Harvard University Press, Cambridge, Mass. 1956. 204 Pages, \$3.50.

SCALPEL—Men Who Made Surgery—Agatha Young. Random House, New York, 1956. 331 pages, \$5.00.

SEXUAL RESPONSIBILITY OF WOMAN, THE—Maxine Davis. The Dial Press, Inc., 461 Fourth Avenue, New York 16, N. Y., 1956. 299 pages, \$4.00.

SKIN SURGERY—Ervin Epstein, M.D., Assistant Clinical Professor of Medicine (dermatology), Stanford University Medical School. Lea & Febiger, Philadelphia, 1956. 228 pages, 242 illustrations on 101 figures, \$7.50.

TEXTBOOK OF MEDICAL PHYSIOLOGY—Arthur C. Guyton, M.D., Professor and Chairman of the Department of Physiology and Biophysics, University of Mississippi School of Medicine, W. B. Saunders Company, Philadelphia, 1956. 1,030 pages, 577 figures, \$13.50.

THERAPY OF FUNGUS DISEASE—An International Symposium—Edited by Thomas H. Sternberg, M.D., Professor of Medicine (dermatology) and Assistant Dean for Postgraduate Medical Education, and Victor D. Newcomer, M.D., Associate Professor of Medicine (dermatology), U.C.L.A. School of Medicine. Little, Brown and Company, Boston. 337 pages, \$7.50.

TRUTH ABOUT CANCER, THE—Charles S. Cameron, M.D., Medical and Scientific Director, American Cancer Society. Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1956. 268 pages, \$4.95.

TUBERCULOSIS IN THE ARMY OF THE UNITED STATES IN WORLD WAR II—An Epidemiological Study With an Evaluation of X-ray Screening—Esmond R. Long, M.D., Director, The Henry Phipps Institute, University of Pennsylvania, Seymour Jablon, A.M., Statistician, Follow-up Agency, Division of Medical Sciences, National Research Council, Washington, D.C. V.A. Medical Monograph, Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C., 88 pages, \$1.50.

UROLOGY—B. G. Clarke, M.S., M.D., F.A.C.S., Associate Professor of Urology, Tufts University School of Medicine; and Louis R. M. Del Guercio, M.D., Assistant Resident Surgeon, St. Vincent's Hospital, New York. The Blakiston Division, McGraw-Hill Book Company, Inc., New York, 1956. 245 pages, \$6.50.

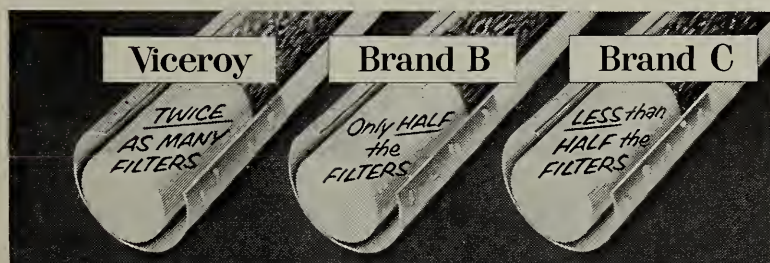
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New Penicillin Form Good For Minor Infections

A new form of penicillin especially effective when taken orally is reported in a recent issue of the *Journal of the American Medical Association*.

The new form, phenoxymethyl penicillin (penicillin V), was found to be useful for treating a variety of minor infections by a group of Rochester, Minn., physicians. Detroit researchers also said it may prove valuable in treating subacute bacterial endocarditis, a serious inflammation of the heart lining.

When taken orally penicillin V is more effective

than the common penicillin G because it is not destroyed by acid in the stomach, and, therefore, has a higher rate of absorption from the intestinal tract. It also has a longer period of action than does penicillin G, they found.

Drs. William J. Martin, Donald R. Nichols, and Fordyce R. Heilman of the Mayo clinic and foundation, Rochester, said penicillin V treatment of 18 patients with various minor infections caused by streptococci, pneumococci, and micrococci was satisfactory in all cases.

The Detroit physicians said penicillin has been found to be the most effective treatment for bac-

(Continued on Page 70)



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New Penicillin Form Good For Minor Infections

(Continued from Page 62)

terial endocarditis, but the high doses and prolonged intramuscular, subcutaneous, or intravenous administration frequently result in complications which might be avoided by oral administration.

So Edward L. Quinn, M.D., James M. Colville, M.D., Frank Cox, Jr., M.D., and Joseph Truant, Ph.D., of the Henry Ford hospital, gave penicillin V to four patients with endocarditis. The antibiotic was successful in two cases and successful in combination with streptomycin in another. It was un-

successful in the fourth case because of a penicillin-resistant organism.

Mild gastrointestinal irritation with slight abdominal cramps was reported in a few of the Rochester patients taking penicillin V, but neither group showed any severe allergic reactions to it. Whether penicillin V will cause such reactions remains to be seen, the authors said.

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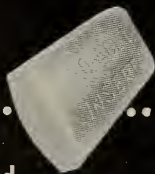
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References: 1. Dixon, H. H., and others: West. J. Surg. 62:338 (June) 1954. • 2. Jones, C. H.: (in press).
• 3. Watkins, A. L.: New England J. Med. 248:621 (April 9) 1953. • 4. Aldes, J. H.: Bull. Biol. Sciences Foundation 1:4 (April) 1954.

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Dr. Dwight H. Murray Honored

Dr. Dwight H. Murray was one of two persons who received a "Dignity of Man" award at a civic banquet tendered by Kessler Institute for Rehabilitation at West Orange, New Jersey, recently.

Dr. Murray received his award for his "unique contribution" as a leader in American medicine.

The banquet, attended by 400 prominent civic leaders in and around West Orange, also was the occasion for celebrating the 60th birthday anniversary of Dr. Henry H. Kessler, who was one of the founding members of the American Medical Association Council on Industrial Health.

In his acceptance address, Dr. Murray said that his friendship with Dr. Kessler dated back many years. "Dr. Kessler put in 17 years of hard work with the Council," Dr. Murray said, "and he can well be proud. The Kessler Institute for Rehabilitation is truly a monument to his skill and keen insight as a physician."

—A.M.A. Secretary's Letter

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Folic acid	1 mg.	Nicotinamide (niacinamide)	10 mg.
Vitamin A	4,000 units	Vitamin B ₆ (pyridoxine hydrochloride)	1 mg.
Vitamin D	400 units	Vitamin C (ascorbic acid)	50 mg.
Vitamine B ₁ (thiamine hydrochloride)	3 mg.		



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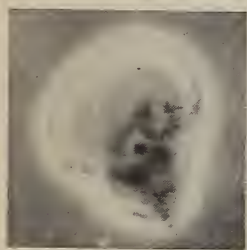
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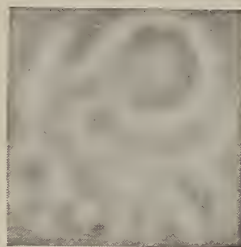
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WITH the Davis technique, both VAGISEC® liquid and jelly, flare-ups of vaginal trichomoniasis rarely occur. VAGISEC liquid actually *explodes* trichomonads within 15 seconds after douche contact.¹ Better than 90 per cent apparent cures follow use of this new trichomonacide developed as "Carlendacide," by Dr. Carl Henry Davis, noted gynecologist, and C. G. Grand, cell physiologist.²



CONTACTS



EXPLODES

No trichomonad escapes—Three chemicals in VAGISEC liquid combine in balanced blend to weaken the cell membrane, to remove waxes and lipids, to denature the protein. With its cell wall destroyed, the trichomonad imbibes water, swells and explodes.

Explodes hidden trichomonads—Unlike many agents, VAGISEC liquid quickly dissolves albuminous materials, penetrates thoroughly.¹ It explodes trichomonads that tend to persist and cause treatment failure.

The Davis technique†—The physician uses VAGISEC liquid as a vaginal scrub at the office. He prescribes VAGISEC liquid and jelly for concomitant use at home.

*Infected husbands re-infect wives*²—Use of a condom breaks the infection cycle.² A prescription assures the protection afforded by Schmid quality condoms — RAMSES®, the finest possible rubber prophylactic; or XXXX (FOUREX)® skins of natural animal membranes, pre-moistened.

References: 1. Davis, C. H.: J.A.M.A. 157:126 (Jan. 8) 1955.

2. Davis, C. H.: West. J. Surg. 63:53 (Feb.) 1955.

JULIUS SCHMID, INC.

gynecological division

423 West 55th Street, New York 19, N. Y.

†Pat. App. for

VAGISEC, RAMSES and XXXX (FOUREX) are registered trade-marks of Julius Schmid, Inc.

Active ingredients in VAGISEC liquid: Polyoxyethylene nonyl phenol, Sodium ethylene diamine tetra-acetate, Sodium dioctyl sulfosuccinate. In addition, VAGISEC jelly contains Boric acid, Alcohol, 5% by weight.

Public Warning Against Hoxsey Cancer Treatment

Sufferers from cancer, their families, physicians, and all concerned with the care of cancer patients are hereby advised and warned that the so-called Hoxsey treatment for internal cancer has been found by the United States Court of Appeals for the Fifth Circuit, on the basis of evidence presented by the Food and Drug Administration, to be a worthless treatment.¹

The Federal Food, Drug, and Cosmetic Act authorizes dissemination of information regarding drugs in situations involving imminent danger to health or gross deception of the consumer.²

The Hoxsey treatment for internal cancer involves such drugs. Its sale represents a gross deception to the consumer. It is imminently dangerous to rely upon it in neglect of competent and rational treatment.

The Hoxsey treatment costs the patient \$400 plus \$60 in additional fees: Expenditures which will yield nothing of any value in the care of cancer. It begins with a superficial and inadequate examination of the patient at the Hoxsey Cancer Clinic, Dallas, Texas, or Portage, Pennsylvania. The patient at Dallas is then supplied with one of the following "cancer" medicines: Black pills, red pills, a brownish-black liquid, or a light red liquid. The black pills and the brownish-black liquid contain: Potassium iodide, licorice, red clover blossoms, burdock root, Stillingia root, berberis root, poke root, cascara sagrada, prickly ash bark, and buckthorn powder. The red pills contain potassium iodide, red clover, Stillingia root, poke root, buckthorn, and pepsin. At Portage the patient is given the same "cancer" medication although the colors of the pills are different. The light red liquid medicine is potassium iodide in elixir of lactated pepsin. There is evidence that potassium iodide accelerates the growth of some cancers.

The Food and Drug Administration has conducted a thorough and long-continuing investigation of Hoxsey's treatment. His claimed cures have been extensively studied and the Food and Drug Administration has not found a single verified cure of internal cancer effected by the Hoxsey treatment. In addition, the National Cancer Institute of the United States Public Health Service has reviewed case histories submitted by Hoxsey and advised him that the cases provided no scientific evidence that the Hoxsey treatment has any value in the treatment of internal cancer.

On October 26, 1953, Harry M. Hoxsey, the

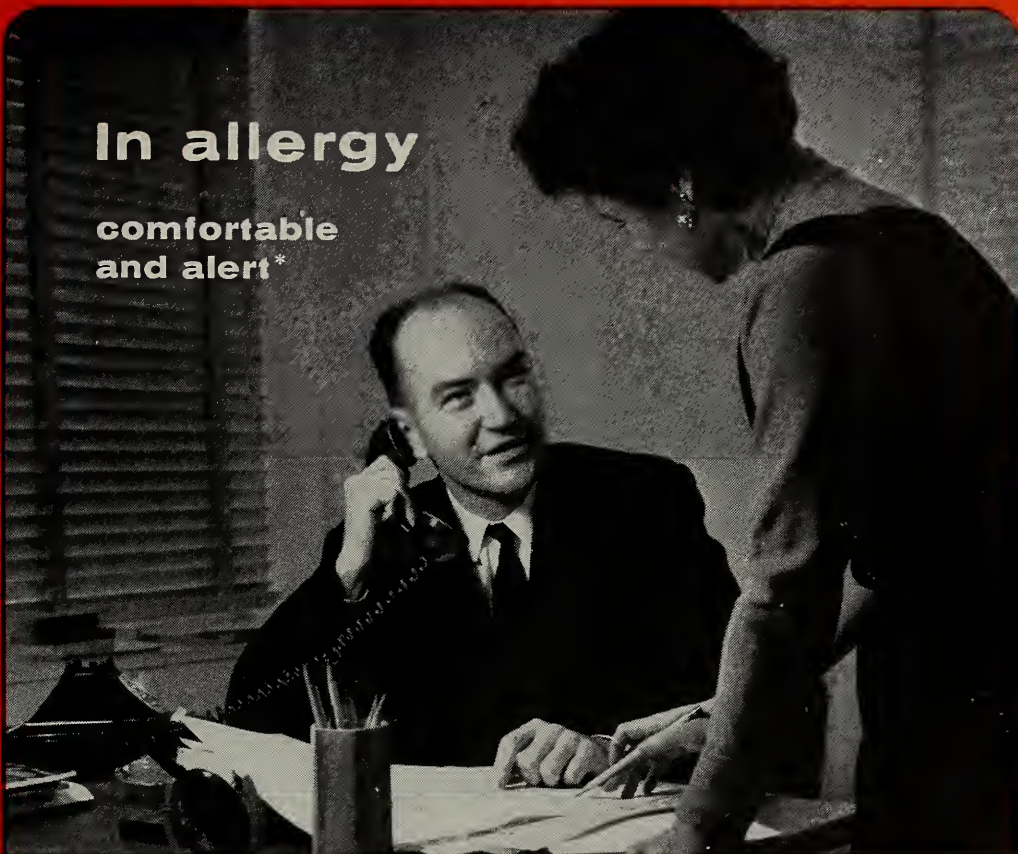
¹ The court decisions can be found in Volume 198, Federal Reporter, Second Series, page 273, and Volume 207, Federal Reporter, Second Series, page 567.

² 21 U.S.C. 375 (b) This authority has been delegated to the Commissioner of Food and Drugs by the Secretary of Health, Education, and Welfare, 20 Federal Register 1998.

(Continued on Page 82)

In allergy

comfortable
and alert*



*"Only a **small** percentage had drowsiness..."¹

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Clinical experience^{1,3-5} has shown that Neohetramine surpasses expectations for an antihistamine preparation because:

- ... it is *well tolerated*⁶
- ... *sedation is slight, infrequent*^{1,2}
- ... it is *effective* for hay fever, allergic rhinitis and dermatitis and dermatitis urticaria, angioneurotic edema, serum sickness and other allergies responsive to antihistaminic treatment.

Supplied

Tablets—25, 50, and 100 mg.
Syrup—25 mg. per teaspoonful
Cream—2%

1. Criepe, L. H., and Aaron, T.: J. Pediat. 34:414, 1949.
2. New and Nonofficial Remedies, Philadelphia, J. B. Lippincott Company, 1954, p. 15.
3. Schwartz, E.: Ann. Allergy 7:770, 1949.
4. Basic Drugs, U. S. Public Health Service Hospitals and Clinics, Federal Security Agency, P.H.S. 1953, p. 99.
5. Feinberg, A. R.: Postgrad. Med. 13:266, 1953.
6. Friedlaender, S., and Friedlaender, A. S.: J. Lab. & Clin. Med. 33:865, 1948.



NEPERA CHEMICAL CO., INC.
Pharmaceutical Manufacturers
Nepera Park, Yonkers 2, N. Y.

N-2616-M

Public Warning Against Hoxsey Cancer Treatment

(Continued from Page 78)

Clinic, and all persons in active concert with him were enjoined by the United States District Court at Dallas, Texas, from shipping their worthless cancer medicines in interstate commerce with labeling, representing, suggesting, or implying that the products are effective in the treatment of any type of internal cancer. While the government intends to prosecute violations of the injunction, this warning is neces-

sary for the immediate protection of cancer victims who may be planning to take the Hoxsey treatment.

Those afflicted with cancer are warned not to be misled by the false promise that the Hoxsey cancer treatment will cure or alleviate their condition. Cancer can be cured only through surgery or radiation. Death from cancer is inevitable when cancer patients fail to obtain proper medical treatment because of the lure of a painless cure "without the use of surgery, x-ray, or radium," as claimed by Hoxsey.

GEO. P. LARRICK
Commissioner of Foods and Drugs

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(non-sugar)

Based on research and formula perfected at
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100 GRAM PORTION CALORIE VALUE

Protein	24.00 calories
Butterfat	90.00 calories
Stabilizer (pure)	1.60 calories
Carbohydrate	
Milk Sugar	19.00 calories
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	176.60 calories

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hydrochloride CIBA) and 20 mg. phenobarbital.

2/2228M

List Reasons For Suicide Attempts by Aged

Persons over 60 don't attempt suicide because of social and family difficulties as frequently as younger people do, three St. Louis physicians said recently.

Attempts by aged people spring primarily from actual mental illness, they said in a recent issue of the *Archives of Psychiatry and Neurology*, published by the American Medical Association.

They reported a study of 109 attempted suicides, of which 19 were by persons over 60. These included 14 men and five women. The doctors found that 17 of the aged patients had some specific type of mental disease and two were chronic alcoholics. The younger patients had a number of different diseases and 23 per cent of the cases could not even be diagnosed. Since most of the aged patients were suffering a treatable or reversible disease, they could become useful citizens again if the underlying illness were overcome.

Potentially disturbing situations, such as marital or financial difficulties or death of a loved one were much more frequent in the younger group than the older group. In fact, complaints of loneliness, finances, or hopeless physical conditions were rare among the aged patients. Genuine attempts were more frequent in the older group than in the younger group. This is related to the fact that serious suicide attempts occur most frequently in

patients with manic-depressive psychosis, senile psychosis, or cerebral arteriosclerosis, which occur more frequently in older people, the doctors said.

Twelve of the patients suffered either manic-depressive psychosis or acute organic disease of the brain. Both of these diseases are treatable or reversible. Therefore, the doctors recommended that immediate management of aged patients with these diseases who attempt suicide should consist of hospitalization in order to treat the underlying illness and prevent a subsequent suicide.

The doctors concluded from their study and a similar one conducted in England that loneliness, reactions to the aging process, feelings of uselessness, enforced unemployment, and the presence of serious physical illnesses are probably not alone sufficient to impel an older person to attempt suicide. Rather some definite psychiatric illness most always intervenes.

They pointed out that their study was concerned only with persons who attempted suicide and not persons who committed suicide. They did not know, therefore, how many of their findings would apply to a group of patients who actually commit suicide, but thought that patients whose attempts were designated as serious would be very similar to patients who commit suicide.

The study was made by Drs. Patricia O'Neal, Eli Robins, and Edwin H. Schmidt from the department of psychiatry and neurology, Washington University School of Medicine, and the St. Louis City hospital.

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Before prescribing SPARINE, it is important that the physician be fully conversant with our literature, particularly those parts of it dealing with administration, dosage and possible side-effects.

Supplied: Tablets, 25, 50, and 100 mg., bottles of 50 and 500; 200 mg., bottles of 500. Injection, 50 mg. per cc., vials of 2 and 10 cc.



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We are also grateful for the support we have continually received from the American Medical Association, which has cooperated in this series from the very beginning.

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